

JANUARY 1925 ~ NO 228

Monthly

A Reference for Buyers

Dealers in Machinery throughout the United States and to
Dealers in American Machinery Abroad

A. H. HITCHCOCK
1247-49 Custom Bldg.
Chicago

FOR INDEXES SEE LAST PAGES



Ready for work—anywhere—any time

With Reliance Motors as the driving power for your machines you are assured of space economy and a machine arrangement to suit your manufacturing process.

Machines can be placed wherever you can run a wire. Motors can be on the machines, the floor, wall or ceiling. Each machine is ready for work at the throw of a switch.

Well insulated stators, good bearings and an improved rotor construction are featurets that help keep Reliance Induction Motors on the job ready for work—anywhere and at any time.

Bulletin 5018 gives detailed evidence

Reliance Electric & Engineering Co.

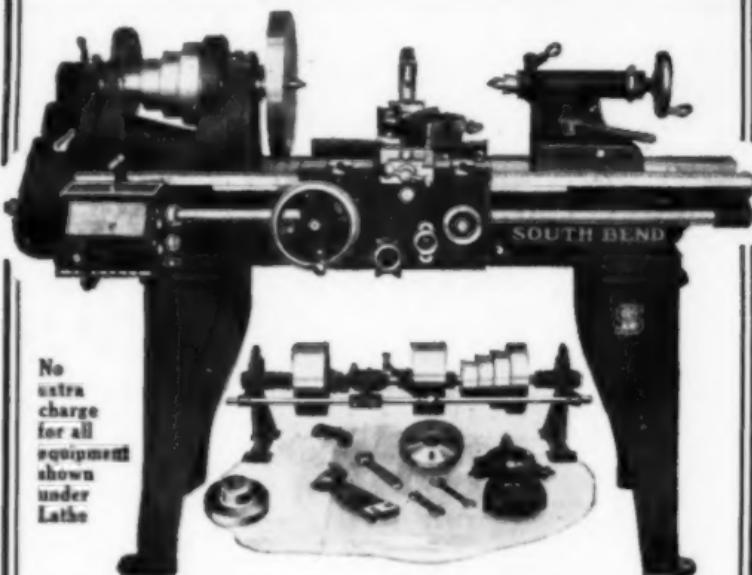
1050 Ivanhoe Road, Cleveland, Ohio

Branches:

Boston New York Philadelphia Pittsburgh Chicago Detroit Cincinnati Birmingham, Ala.

We specialize in motors sizes $\frac{1}{2}$ to 200 h. p. constant and adjustable speed D. C.; squirrel cage and slip ring A. C.

Type **A.A. RELIANCE**
Induction Motors



13-in.x5-ft. Quick Change Gear \$354 Complete. Easy
South Bend Screw Cutting Lathe Terms if Desired.

32 Major Improvements

In This New SOUTH BEND LATHE

The new South Bend Lathes embody 32 major improvements made in the last 2 years. For accuracy and efficiency, they are unsurpassed. Used by 2 largest steel plants, 8 largest auto factories, 5 largest railroad shops, largest oil company, by U. S. Government, and in 64 foreign countries.

Free Catalog Shows 96 Styles in All Sizes

We ship any Lathe you choose on 30 days' trial, and on easy payments, and back every Lathe with our unqualified guarantee. Send for Catalog today.

South Bend Lathe Works

ESTABLISHED 1906

321 E. Madison St., South Bend, Ind., U.S.A.



**24" Instantaneous Change Gear
Engine Lathe, 3 Step Cone,
Double Back Gear, Double
Plate Apron.**

We have a few of this pattern left, which on account of discontinuing Cone Driven Type of Lathes, we are offering at the following special prices, NET, f. o. b. Cincinnati:

24"x12" Compound Rest.....	\$1500.00
Extra 2' Bed.....	115.00
Taper Attachment.....	200.00

THE BOYE & EMMES MACHINE TOOL COMPANY, 2245 Spring Grove Ave., CINCINNATI, OHIO

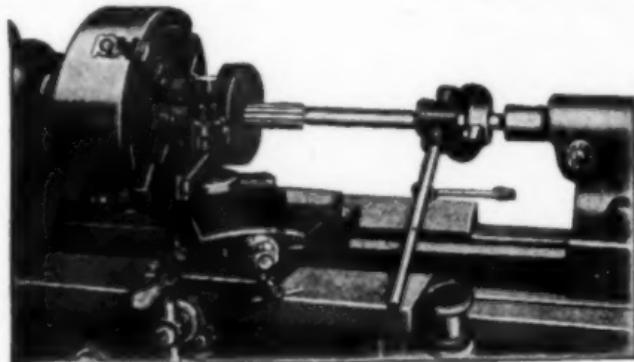


If you ever ran a lathe it has surely happened to you.
It continues to happen daily in almost all shops.

Until the Nicholson Reamer Holder was invented there was no other method by which a mechanic could keep his reamer from jumping in, or prevent it from reaming a tapered hole. This Holder can also be used instead of a chuck for drills and as a hold back in a lathe. It has many uses and saves double its cost in a short time. No. 1 size takes straight shank reamers and drills up to 1^{1/2} dia., and No. 2 takes up to 2^{1/2} in dia.

Send us sketch of socket or number of Morse taper of lathe you would like to try one on, and we will send it on trial. If you desire further information and circular, write us.

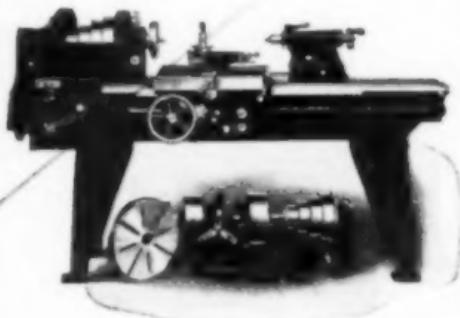
W. H. Nicholson & Company
117 Oregon Street, Wilkes-Barre, Pa.



A. V. Carroll Lathes

Have patented invisible gap without extra cost

Made in sizes 12", 14", 16", 18" and 20"



High quality at the lowest possible cost to you.

Easy payment plan if desired.

Write for circular, and let us show you a big saving

A. V. Carroll Machine Tool Co., Norwood,
Cincinnati, O.

Westcott's Little Giant Double Grip Drill Chuck

Three distinct grips can be applied to the same tool at the same time with this well-known chuck--thus developing a positive grip with many times the holding power possessed by any other chuck.



If you have never used one, we urge that you buy one now and permit it to prove that it has those qualities that insure your not being disappointed whenever you specify WESTCOTT CHUCKS, for lathes and drills.

Inquiries will be answered with complete information.

Westcott Chuck Company

316 E. Walnut St., Oneida, N. Y.

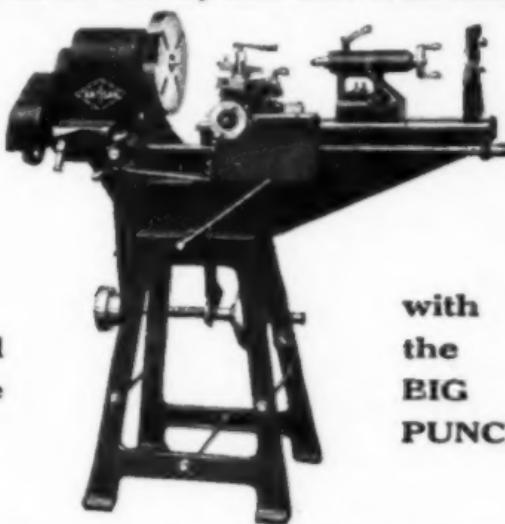
"*Been making chucks since 1873*"

Are YOU from Missouri?

We claim that the "Artisan" 11" Lathe represents greater productive value to the user than any small Lathe on the market today.

"The
Small
Lathe

with
the
**BIG
PUNCH"**



One of the wide-awake dealers—
listed below, will gladly SHOW YOU this Tool, and the many novel
features which make up the value that we claim.

Shaw-Palmer-Bakewell Company, Los Angeles, Cal.
Flanagan Machinery Co., 321 Clay St., Oakland, Cal.
Motor Supply Co., Phoenix, Arizona.
Mine & Smelter Supply Company, Salt Lake City, Utah.
Crow-Burlingame Co., Little Rock, Arkansas.
Robinson, Cary & Sands Co., St. Paul, Minnesota.
Badger-Packard Machinery Co., Milwaukee, Wisconsin.
H. Channon Company, Market & Randolph Sts., Chicago.
Earl Spitz, 411 Alger Ave., Detroit, Michigan.
St. Louis Machinists' Supply Co., 920 N. Broadway, St. Louis.
Richey-Whaley Machinery Co., 23 E. South St., Indianapolis.
National Supply Company, No. 1 St. Clair St., Toledo, Ohio.
Clark Machinery Co., 1235 St. Clair Ave., Cleveland, Ohio.
Marr-Galbreath Machinery Co., Water St., Pittsburgh, Pa.
Simmons Machine Tool Corporation, Troy Road, Albany, N. Y.
Taylor Machinery Co., 261 Franklin Street, Boston, Mass.
L. V. Standish, 43 Prospect St., Gardiner, Maine.
Chas. J. Geohegan Machinery Co., Birmingham, Alabama.
R. S. Armstrong & Bro. Co., Atlanta, Georgia.
Krueger Machinery Co., San Antonio, Texas.
Norton-Broadway Machinery Co., Cincinnati, Ohio.
A. R. Williams Machinery Co., Ltd., Toronto, Ontario.
Hasam & Sessums, 1A Nuevo Mexico No. 6, Mexico City.
Andrews & George Company, P. O. Box No. F-23, Tokyo, Japan.

Artisan Manufacturing Company
Station "N" :: Cincinnati, Ohio

SEBASTIAN—



15" Geared Head Lathe
Single Pulley Drive
Without Motor
\$765

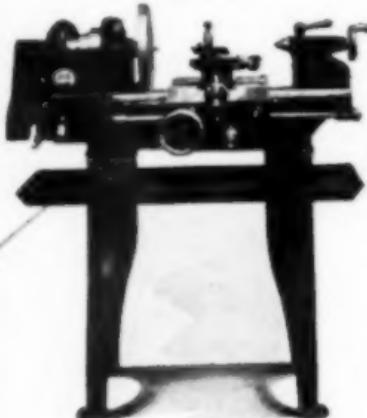
The knowledge, experience and skill derived from almost forty years of exclusive lathe building, has made *Sebastian* Lathes the standard of **QUALITY** in the medium priced lathe field.

Designed Right—Built Right—Priced Right and Guaranteed Correct

Write for details on our new Gold Seal Lathes

The Sebastian Lathe Company
1000 Culvert St., Cincinnati, O., U. S. A.

Monarch Jr. Lathes



are the smallest members of the Monarch lathe family. Yet they are the "biggest little lathes" built.

The Monarch line of lathes includes all sizes and types from the little 9-inch Junior lathe to the big, massive 30-in. lathe. In this line there is a lathe to fill your requirements at the price you want to pay.

Send for Catalog

The Monarch Machine Tool Co.
206 Oak Street, Sidney, Ohio



Order Your High Speed Drills from This Booklet

Recently a prominent shop superintendent gave orders that, hereafter, no one in his plant was to order "high speed drills," but always to specify "Cle-Forge High Speed Drills."

We'll cheerfully send you a copy of this booklet telling all about the famous "Cle-Forge" Drills. A request for it places you under no obligations whatever.

The **CLEVELAND**

TWIST DRILL
COMPANY
CLEVELAND
NEW YORK CHICAGO LONDON

TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

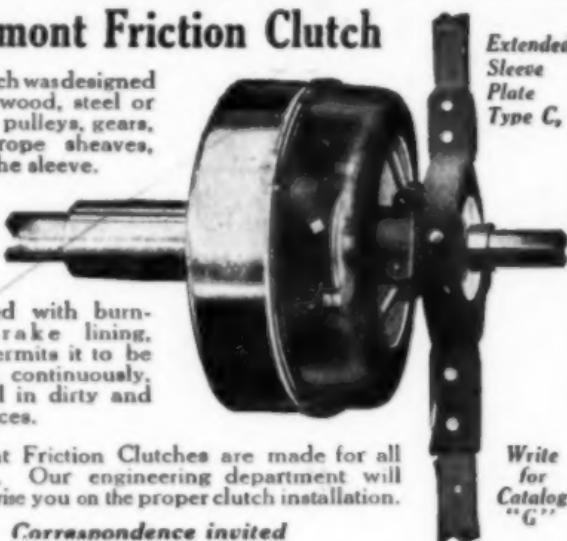
Manufacturers, also, of

Carbon and High Speed Drills for every purpose; "Mezzo" Super-Carbon Drills; Hand, Jobbers' and Shell Reamers; "Peerless" High Speed Reamers; "Paradox" Adjustable Reamers; "Quick-Set" Reamers; Chucking Reamers for Turret Lathes; Counterbores; Countersinks; Sockets; End Mills; and the "Ezy-Out" Screw Extractors.

CLE-FORGE
TRADE MARK PEG. U.S. PAT. OFF.
9

Edgemont Friction Clutch

This clutch was designed to drive wood, steel or cast iron pulleys, gears, drums, rope sheaves, etc., on the sleeve.



It is lined with burn-proof brake lining, which permits it to be operated continuously; and used in dirty and dusty places.

Edgemont Friction Clutches are made for all purposes. Our engineering department will gladly advise you on the proper clutch installation.

Correspondence invited

*Write
for
Catalog
"G"*

**Edgemont Machine Co., Inc., DAYTON,
OHIO**

Cleveland Open Side Planers

Box Tables.

Tool Box in Beds.

Counterbalanced Side Heads.

Ball Bearing Counter-shafts.

Herringbone Gears for First Reduction.

Graduated Feed Collars.

All Steel Bull Gears.

Many Other Improved Features.



SIZES —
26 to 72"

Simplicity, Rigidity and Accuracy make the CLEVELAND Open Side Planer adaptable to all classes of work.

The Cleveland Planer Co., 3148 Superior Ave., N. E.,
CLEVELAND, OHIO
Established in 1900



Rhodes Shaper and Slotter

Reduces Costs on Dies, Tools, Models
And All Kinds of Light Work

Shaper
Stroke
7 in.

Slotter
Stroke
 $3\frac{1}{2}$ in.



THE "RHODES" has all the essential features of the larger machines in everything but size and price.

It is a money-saver in shaping and slotting all kinds of light work.

Its exceptional efficiency recommends it to all shops, large and small, and its price brings it within the reach of everyone.

*Ask your dealer or write for
CATALOG H22*

The Rhodes Mfg. Company
948 Park Road, Hartford, Conn.

SHAPERS—RHODES~SLOTTERS

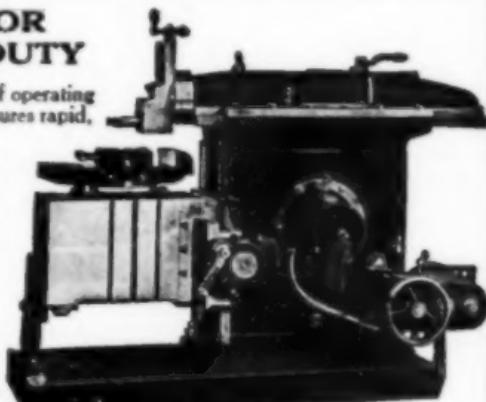
COLUMBIA SHAPERS

SUPERIOR HEAVY DUTY

Centralized location of operating handles and levers insures rapid, convenient operation. Massive construction and powerful drive provides for handling heavy work to best advantage.

SIX SIZES
16"-20"-24"
28"-32"-36"

Bulletin No. 7 giving full details sent free on request.



Cone, Single Pulley and Motor Drive

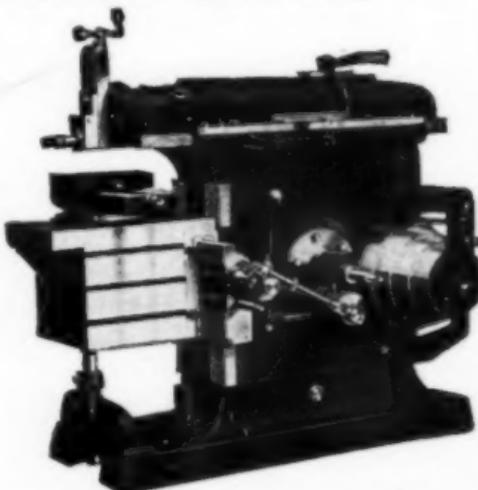
THE COLUMBIA MACHINE TOOL CO., HAMILTON, O.

Manning, Maxwell & Moore, Inc., Selling Agents, New York City and Branches

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

32" Back
Geared
Crank, Sin-
gle Pulley
Drive.



The Smith & Mills Co., Cincinnati, O., U.S.A.



Collect Your Dust During the Year 1925

With the Old Reliable, Time-Tested

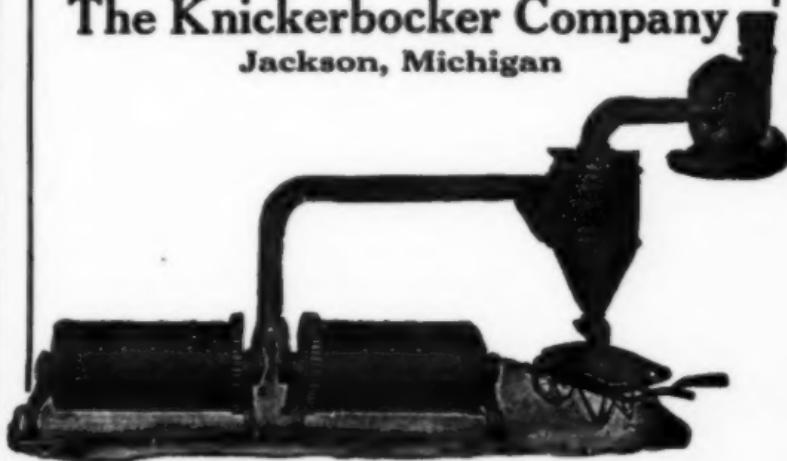
"Rarefied" Dust Collector

It will pay you to do this because it is thoroly efficient—no matter how difficult your dust problem, the "Rarefied" Collector will take care of it to your entire satisfaction.

Besides being efficient, it is also the acme of economy. It saves power, sometimes nearly 50% over old methods. And as to repairs, you will find them next to nothing.

Used in big plants and in small ones thruout the country. Westinghouse is now using thirty-four. Let us mail you our Booklet.

The Knickerbocker Company
Jackson, Michigan



E-Z THREAD DIAL E-Z

New device
lowers cost
of thread
cutting on
engine lathes.

For all
size lathes.

E-Z to
attach.

Send for
folder.



Eliminates
stopping or
reversing the
lathe.

Saves cost of
backing belt.

Saves power
to drive same.

E-Z to use.

Send on fifteen
days' trial.

JAMES M. COLVEN, 20 Wolffe Street,
Yonkers, N. Y.

*Just write us the make and swing of
your Lathe—we'll do the rest*



Hardinge Standardized
Draw-in Chucks or Collets
For ALL Makes of Lathes

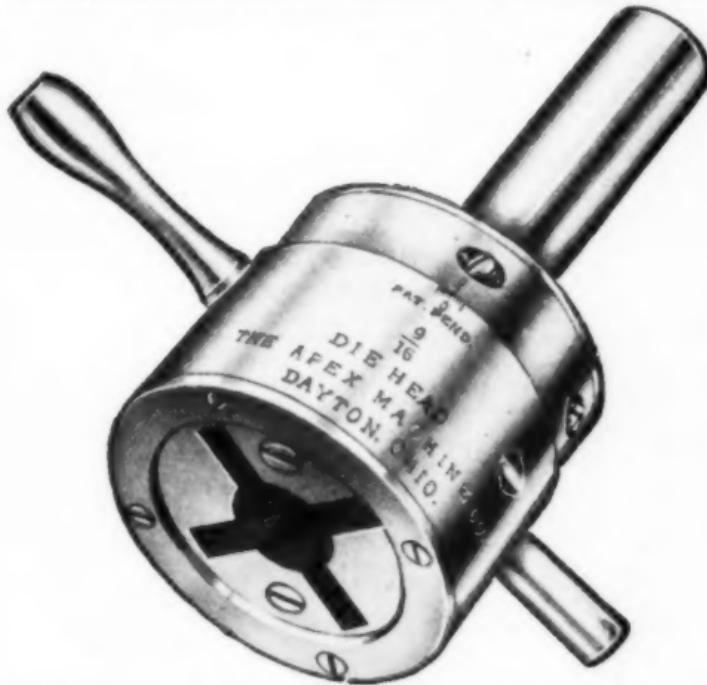
Also Collets for Bench Type Milling Machines and
for Screw Machines. Prompt shipment from stock.
Write for Price List and keep it for reference. And
what do you need now for the New Year?

HARDINGE BROS., Inc., 1770 Berleau Av. CHICAGO, ILL.

APEX

Stationary Automatic Self-Opening
DIE HEADS

Will Solve Your Threading Problems
Hardened and Ground



"Chasers" are ground and corrected
AFTER HARDENING
A Die Head That Pays Dividends

Write for Bulletin No. 10

Apex Machine Co.
DAYTON, OHIO



In 15 Years We Have Served Over 800 Shops

And most of those stools which we sold at the beginning of our career, are still in use. Good as they were then—

"Square Circle" Stools

are made even better today. Invest in them now, and it is safe for you to forget all about them. The electrically welded steel rings are as strong in the weld as in any other part. Seats are of 1" hardwood, 13½" in diam., securely fastened. Frames or legs are of angle steel.

Full details in our Catalog.

Order now for 1925 and the future.

**Kalamazoo
Steel Goods Company**
408 E. Ransom St., Kalamazoo, Mich.

Barker Wrenchless Chuck

Developed and Manufactured by Thomas Elevator Co.

A complete Chucking Unit in Itself. The Barker Wrenchless Chuck requires No Accessory Installations.



Made in two- and three-jaw styles, for every kind of turret lathe, automatic, and semi-automatic machine work.

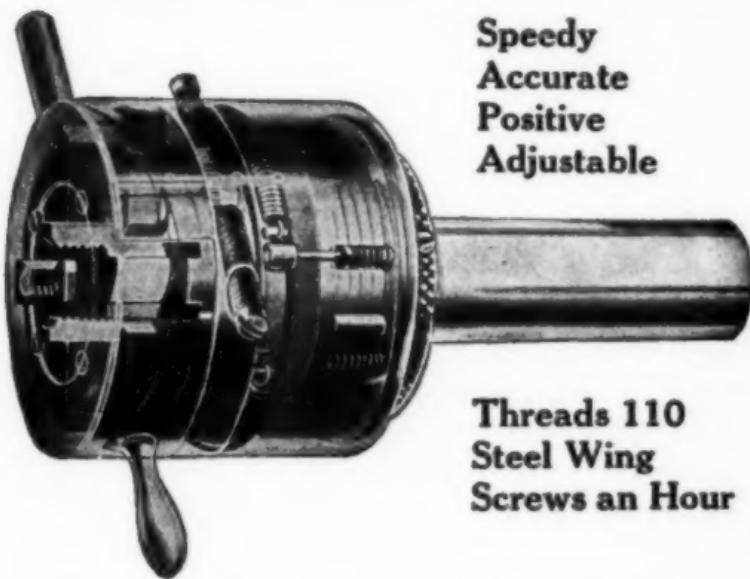
Thomas Elevator Co.

Chuck Division

31 So. Hoyne Ave., Chicago

Well Liked in Auto Plants

The Rapid R-S Automatic Die Head



Speedy
Accurate
Positive
Adjustable

Threads 110
Steel Wing
Screws an Hour

The above is the notable record in a prominent Detroit manufacturing plant. There are many auto plants where the R-S Die Head is used on the most exacting work, such as cutting pipe threads on water pump bodies, where a defective thread means a leak and rejection. The volume of work in this line is also very satisfactory.

With the dependable "R-S" you have neither stripped threads nor broken chasers. Nothing to delay the work in hand or to help swell the scrap pile.

The chasers run in hardened ways; die is carried on two locking pins instead of the usual one, and positive opening mechanism prevents chasers sticking or acting inaccurately in any way. Made in 21 sizes.

Writing us about your threading problems incurs no obligation

Rickert-Shafer Co., 1110 Cherry St., Erie, Pa.

AUTO REPAIR SHOPS

The Whitney Cylinder Grinder Will Make Money
For You Regrinding Automobile Cylinders

The grinding wheel travels in a true circle and grinds off only enough to make a hole that is round and straight. This machine does the work right and does it quick. That's why you can do a profitable business with a Whitney.

Write for new catalog

BAXTER D. WHITNEY & SON

Incorporated
WINCHENDON, MASS., U. S. A.

Selling Agents:

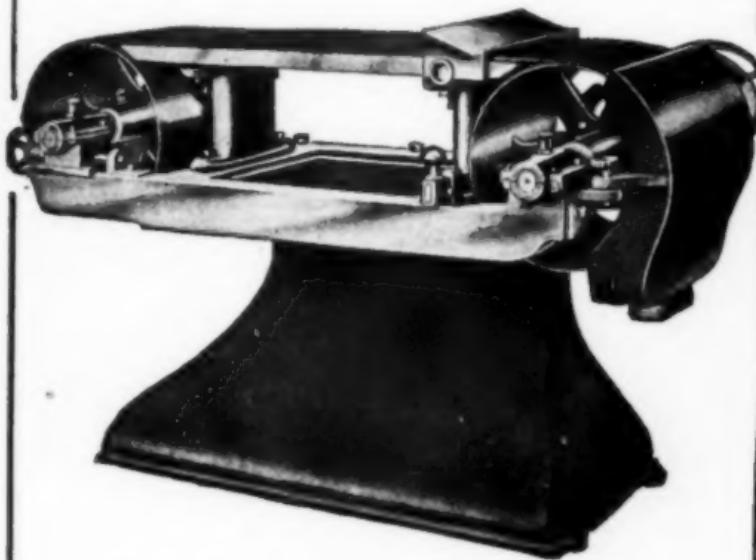
BERGER & CARTER CO., - 470 E. Third St., Los Angeles, Cal.
E. A. KINSEY & CO., Indianapolis, Ind., and Cincinnati, Ohio
MARSHALL & HUSCHART MFG. CO., 17 So. Jefferson St., Chicago
CADILLAC MACHINE CO., Beaumont & E. Lafayette Sts., Detroit, Mich.



PEERLESS SURFACING MACHINES

Will reduce grinding and finishing costs
and give you better work.

Can be substituted for many expensive
milling machine and planer operations.



Made also in vertical and bench models.

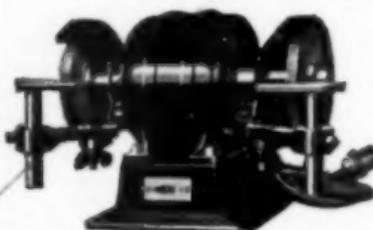
Send for large folder

PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

In Canada: A. R. WILLIAMS MACHINERY CO., Toronto

A "BODINE" in Every Department

Saves Time—Insures Sharper Tools



BODINE Portable Electric TOOL GRINDERS

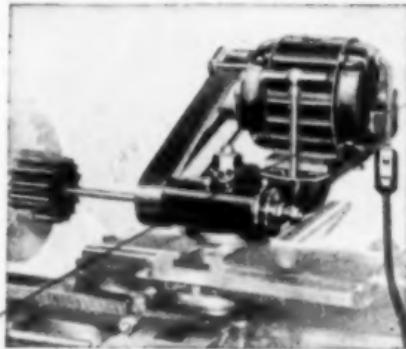
Are placed in every department in some plants, saving steps and time and insuring sharper tools.

THE "BODINE" is as near mechanical perfection as we know how to make it. It is equipped with Norma precision ball bearings, heavy wheel guards, tool rests adjustable to any position, an ideal oiling system, etc., etc. And the price is right, too.

*Write for the complete description
It costs nothing, but may prove quite valuable*

The Bodine Electric Company
2256 West Ohio St., Chicago, Ill.

PRECISION GRINDER



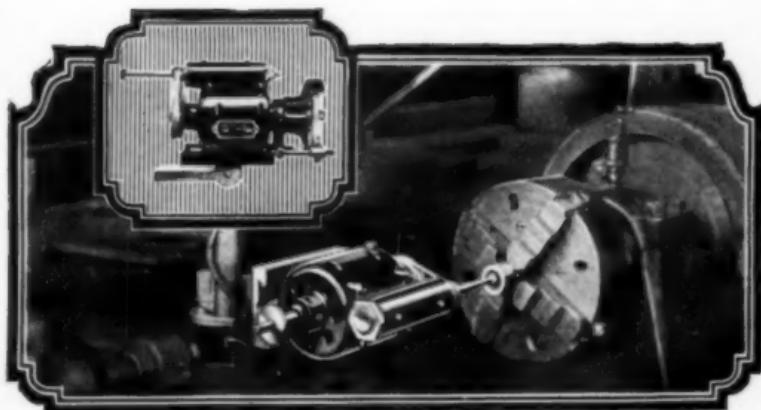
PAT. PENDING

A highly developed grinder for either internal or external precision work. Has new and valuable features. Send us your address for our booklet—it is worth having.

Manufactured by

J. E. GILBERT GRINDING CO.
214-16-18 Greenbush St., MILWAUKEE, WIS.

SERVICE TOOL DIE & MFG. CO.
2256-58 W. Walnut St., CHICAGO, ILLINOIS
Distributors for—ILLINOIS, OHIO, INDIANA, MICHIGAN



Even SKF Trusts Its Grinding to Dumores

THE photograph above shows a Dumore No. 2-AG grinder in action in the tool room of the Hess-Bright Mfg. Co., subsidiary of SKF Industries, Inc. Here again Dumore grinders have been approved by an internationally famous institution; another convincing proof of their ability to perform reliably and efficiently regardless of how exacting or how difficult the requirements may be.

The same features that make Dumore grinders worthy of the trust of such a world prominent concern as SKF Industries, will be equally valued by you, once you have used them in tool room or shop. Available in six styles and sizes—each with individual speed ranges—they offer a grinder with the correct cutting speed for any grinding need. Dynamic balance and smooth operation of Dumore grinder motors eliminate vibration. Ability to operate on either alternating or direct current assures 100% utility. Portable, they save tearing down expensive set-ups.

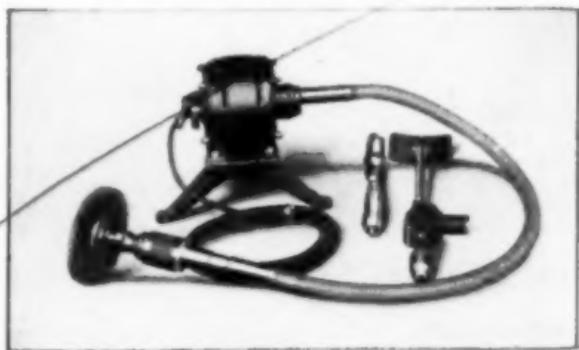
If maintenance of grinding limits as close as .0001, without taper, bell-mouth or chatter marks, appeals to you; if greater production, lowered labor costs and other resultant advantages of Dumore operation interests you, it will pay you to send for our grinder catalog. Your copy is wrapped—ready for the mail. All we need is your name and address. Write!

Wisconsin Electric Co., 43 Sixteenth Street, Racine, Wis.

DUMORE HIGH SPEED GRINDERS

The Whirlwind Buffer and Grinder

**Will cut the cost on any unhandy
grinding or polishing job**



Send for our latest bulletin

Stow Flexible Shaft Co., 3454 Ludlow St.,
Philadelphia, Pa.
The Best Since 1876

The Thompson Universal



**10" x 36"
Grinder**

For practically
every kind of
grinding operation
that may come up
in your shop.

Efficient, con-
venient and eco-
nomical. It will
save both time and
money for you.

Write for Bulletin

Manufactured By
THE THOMPSON GRINDER CO., - Springfield, Ohio

Grand Rapids Universal Grinder

MOTOR DRIVEN

With All Overhead Works Eliminated



GRAND RAPIDS No. 3 & No. 4 Universal Grinders
are furnished either hand feed or power feed,
wet or dry, motor drive or belt drive.

CIRCULAR ON REQUEST

Gallmeyer & Livingston Co.
342 Straight Avenue, S. W.
GRAND RAPIDS, MICH.

Weigel
Single-Wheel
"Kwality Kaster"

Will not crush or break. Swivels on steel machined rollers. The best single caster on the market.

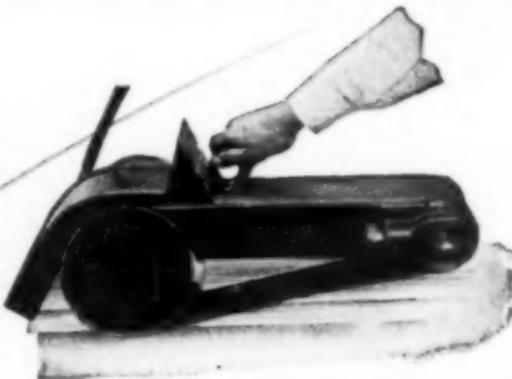
Double-Wheel
"Trukaster"

Lasts three times as long as others. Easiest running, strongest, and most durable double-wheel caster made. Has heavy plates and axes.

Write for Price List
THE HAMILTON
CASTER & MFG. CO.
HAMILTON, OHIO



Grind It Cheaper



Our 6" Belt Grinder puts a straight grain finish on work up to 18 inches in length. Operates in either a horizontal or vertical position from any electrical circuit. *Write for circular.*

Porter-Cable Machine Co., Syracuse N. Y.

Webster & Perks

GRINDING MACHINES

ABSOLUTELY NEW

Yet Priced to Compete with Used Tools

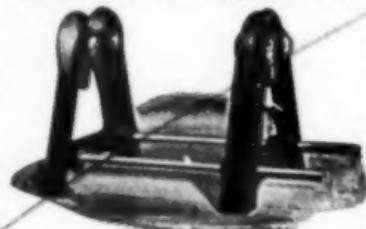
Universal machines combine tool room accuracy with great versatility, rigidity and power for quantity production. Plain machines handle either straight or taper grinding with extreme accuracy. All machines are brand new, and are given thorough inspection and test under belt before shipping. A real bargain at the price.

Send for Circular

Barber-Colman Company
Rockford, Ill., U. S. A.

Balancing Ways

Anderson Improved are Always Ready



Made in six sizes for balancing anything that turns on a shaft, up to 24,000 lbs.—pulleys, gin brushes, turbine rotors, crank shafts, polishing wheels, fly wheels, etc.; also for testing straightness of shafts, crank shafts, etc. No centers required; no leveling. Always ready and accurate; very sensitive.

"Swing"	20"	40"	60"	72"	96"	120"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bend	Bid	Bis	Bib	Bes	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

For Sure Balance--

an absolutely level and solid "Way" is necessary

Bowsher "Balancing Ways"



are brought to an absolute *level* in ten seconds.
No revolving parts.

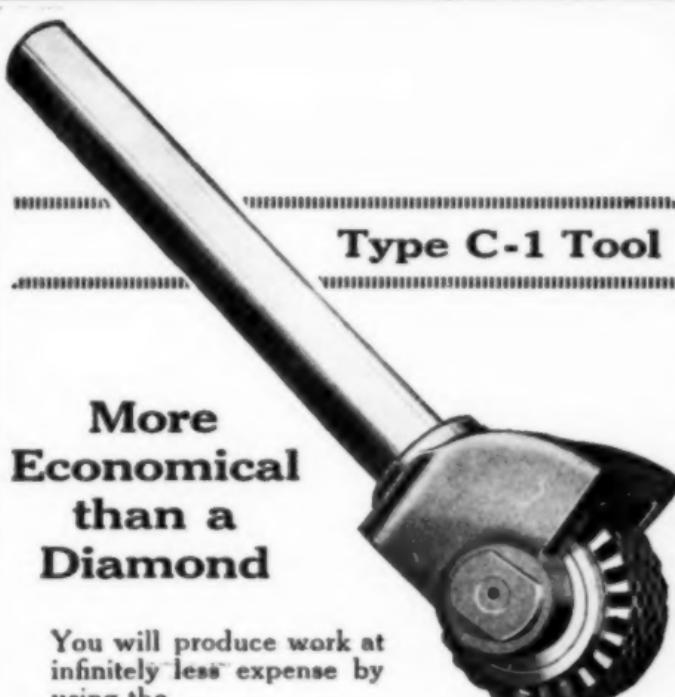
The edges or "knives" upon which the work is tested are ground *true*, and are mounted upon the planed "ways" of a heavy bed or frame.

Standards adjustable to suit length of arbor.

Three sizes for floor—one for bench use

Send for Catalog "F"

The N. P. Bowsher Co., South Bend, Ind.



Type C-1 Tool

**More
Economical
than a
Diamond**

You will produce work at
infinitely less expense by
using the

"Precision" Roughing and Semi-Finishing Wheel Truing Tool

Not a substitute for the diamond, but built on
an entirely different principle, which is an im-
provement over the diamond in that it pro-
duces work equal or better than that of the
diamond, and at a greatly reduced cost.

**It will pay you to put Precision
Wheel Truing Tools to a test.**

Ask for descriptive booklet

**The Precision Truing Machine & Tool Co.
CINCINNATI, OHIO**

Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



Stock sizes for arbors of following diameters: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{5}{8}$, $1\frac{3}{4}$, $1\frac{7}{8}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in. and larger.

Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000" made to order, with keyways if so ordered.

Ash us to send samples; you'll like them

Detroit Stamping Company
3443 West Fort St., Detroit, Mich.

Save Time Setting Gang Milling Cutters

Eliminate
Thin
Washers

Hardened
and
Ground



PATENTED

"Wear-Ever" Adjustable Spacing Collars permit setting cutters to the thousandth part of an inch without removing from the arbor. Stock sizes for $\frac{3}{8}$ " to $2\frac{1}{2}$ " arbors, sent on approval. They are adjustable in 12 steps of $2/1000$ inches.

SCULLY-JONES & CO. TOOL DIVISION
13th and Robey Streets **CHICAGO, ILL.**

Burke Bench Millers

Hand and Power Feed—\$100 to \$220

Burke Millers are dependable machines, built to close limits and well balanced. They are accurate, convenient, economical and good producers.

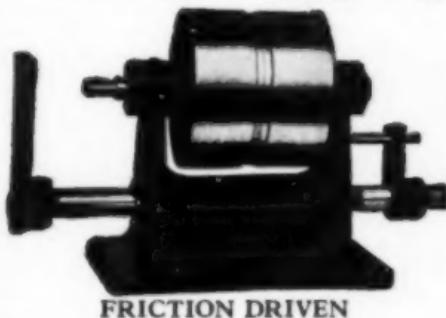
No. 3 Bench Type

Longitudinal Feed 8 inches.
Traverse Feed $3\frac{1}{2}$ inches.
Vertical Feed $7\frac{1}{2}$ inches.
Table Surface $3\frac{1}{2} \times 12$ inches.
Price Bench Type \$155.
Price Column Type \$171.



Write for complete data

Burke Tapping Machines



Built in three sizes, $\frac{3}{16}$ inch at \$25, $\frac{3}{8}$ inch at \$45, and $\frac{1}{2}$ inch at \$60.

Complete in themselves, and highly efficient for all work within their capacity, yet they cost less than the average tapping attachment.

They increase production 20 or 30 or more to one over hand tapping, and do it easy without breaking taps. Let us send you a machine on 10 days' trial, to prove that it will do all we claim for it. Write today, if convenient.

The Burke Machine Tool Co.

297 East 16th Street,

Conneaut, Ohio

Our Hollow Bored Forgings And Steel Shafts

Are RIGHT in both QUALITY and PRICE



Piston Rods
Clutch Shafts
Lathe Spindles

Rams
Steel Pipes
Etc., Etc.

Send along your blueprints with a trial order; we'll both be pleased

**American Hollow Boring Co.
Erie, Penna.**



Special Machinery

Contractors, Builders, and
Designers

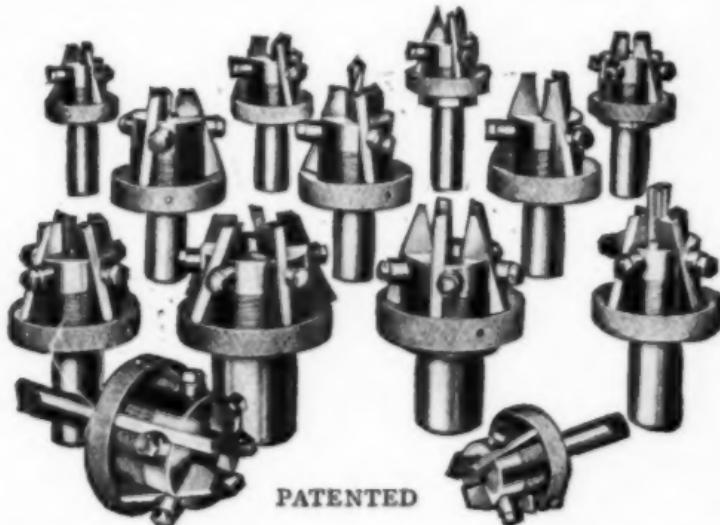
C. H. Cowdrey Machine Works

Established 1875

Fitchburg, Mass.

A Saving Hint for Your Shop

"Use Genesee Hollow Mills"



PATENTED

THEY SAVE—Because the fourteen sizes cover the entire range from $\frac{1}{4}$ " to 2", which ordinarily requires hundreds of solid tools.

THEY SAVE—Because one set of blades outlasts three to five solid tools, and can then be replaced at nominal cost.

THEY SAVE—Because Genesee Hollow Mills cut up to 15" a minute in steel. They are stronger than solid tools and cannot change in size.

THEY SAVE—Because they are ideal for finishing castings, forgings, etc., and more economical than non-adjustable mills for every purpose.

Consult with us freely for economical production

Genesee Manufacturing Co., Inc.
Rochester, N. Y., U. S. A.

Manufacturers of Genesee Rapid Production Tools

The BARKER GENERAL PURPOSE VISE

For Planers, Shapers, Drilling and Milling Machines



Two Sizes

Width of jaws $11\frac{1}{2}''$ — $12''$

Depth of jaws $2\frac{1}{2}''$ — $3''$

Jaws open $8''$ — $12''$

Weight 180—210 lbs.

Also 16" Mold Makers' Vise

OUR MOLD MAKERS' VISE has 13" width of jaws, 7" depth, and jaws open 16"—weight 290 lbs.

ALL BARKER VISES are made extra heavy, with steel faced jaws, and are graduated to swivel any angle. They stand lots of hard usage.

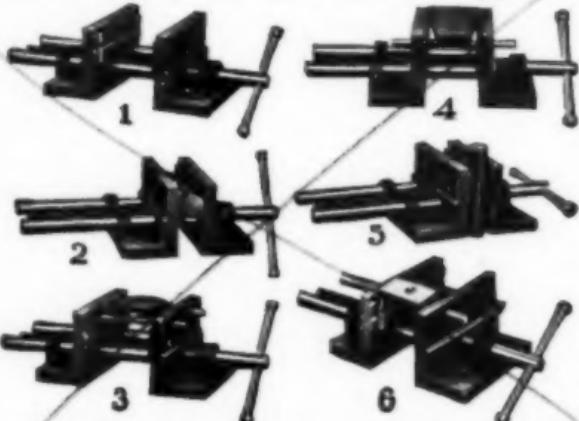
Get in touch with us before buying

WM. BARKER & CO.

Manufacturer of Machine Tools,

COVINGTON, KY.

The D. S. West Drilling Vise



Nothing else like it. Both strong and light, with 8" jaws and 8" opening. Holds round, flat, square and irregular shapes better than other vises. *Full description on request.*

Armstrong Manufacturing Co., Bound Brook, N. J.
Portland, Oregon

\$

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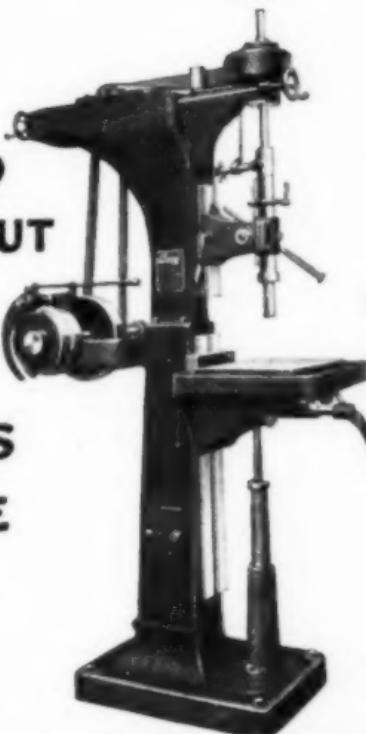
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TO DO
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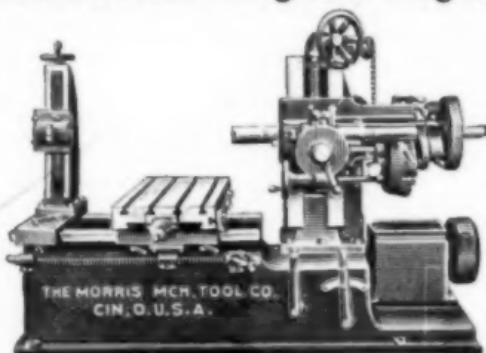


THE AVEY DRILLING
MACHINE CO.
CINCINNATI
OHIO

\$

\$

Morris Horizontal Drilling and Boring Machine



Convenience of operation and ample power behind the cut makes it a splendid production tool.

The micrometer adjustments to the head, table, and bar support, and the splendid workmanship, makes it a wonderful tool room proposition. *The circular tells you more about it.*

The Morris Machine Tool Co., Cincinnati,
Ohio

Ball Bearing Drills Plain Bearing Drills

Foot Lever Feed can be applied to
any of our SINGLE SPINDLE Drills

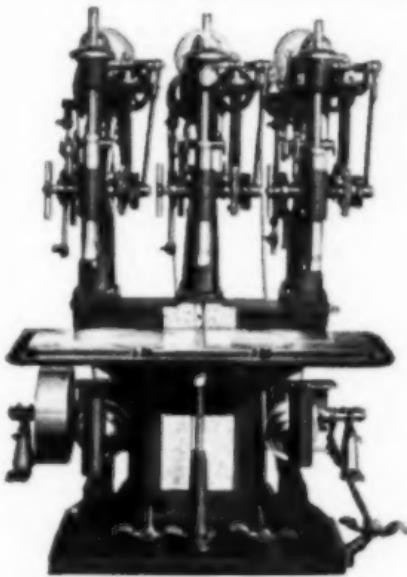
REED DRILLS are the result of our
experience of 35 years in making
good tools. Every detail has been
carefully worked out to insure
durability and efficiency—to make
them exceptional producers.

Ask for prices; they will interest you



Francis Reed Co.
43 Hammond St.
WORCESTER, MASS.

Used Much On Auto Parts and Agricultural Implements



If you are at all interested in lower drilling costs, you should investigate the Rockford Automatic Gang Drilling Machine

Built with
2, 3, 4 and 6
Spindles

Box Column Type

Satisfied Superintendents endorse this modern, ultra-convenient machine. It

produces dependable, accurate work in large volume. Enables operators to establish new low cost shop records.

Automatic Return—When each spindle has completed its operation it automatically returns to its highest position, where it remains until the starting lever is tripped, when it immediately drops to position above the work.

By Removal of the stop pin in the cam, the spindle will immediately return to lowest position above work, and when tripped by automatic stop, will return to highest position and immediately drop again to work, repeating the movement automatically until the power is shut off. The spindle can be pulled ahead of the feed while in operation, a great advantage in drilling through a cored piece, piping or similar work.

Ask for Circular. Glad to answer questions.

Rockford Drilling Machine Co.
ROCKFORD, ILLINOIS

Thor

ELECTRIC DRILLS



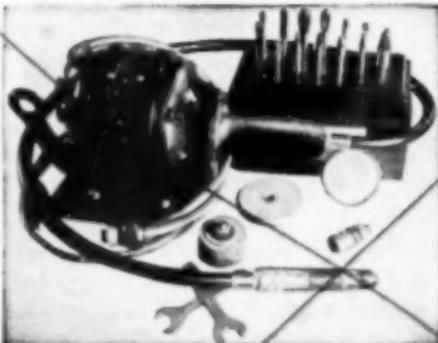
Rugged strength
in every part

That's what you look for in a drill. In the *Thor* you'll find ball and roller bearings, double-silk-wound coils, Jacobs Chucks, and other parts of equally high standard. That's why they run smoothly for so many months without repairs.

78 Types to Pick From—3-16" to 2" capacity. Among them is the *Thor* qualified by hardy and apt construction for your work, no matter how uncommon it may be. Send for illustrated catalog.

Independent Pneumatic Tool Company
600 W. Jackson Blvd., Chicago, Ill.

30-Day Offer On the Pattern Maker's Pal



Consisting of
1/4 h. p. Westinghouse motor
No. 5x4' shaft
No. 5x4' sheath
Can of grease
No. 5 handpiece with two wrenches
Super service drop cord and switch
14 Burs in block
Grinding spindle
3" Grinding wheel
Sanding drum

Regular price of 110 volt, a. c., 3450 r. p. m. outfit \$63.
is \$75. Our special 30-day offer at.....

Regular price of 110 volt, a. c., 1725 r. p. m. outfit \$60.
is \$70. Our special 30-day offer at.....

Only 65 sets at these prices. First come, first served.

The Hergi Mfg. Co., 250 Fifth Street,
Bridgeport, Conn.

The Taylor & Fenn Sensitive High-Speed Radial

Belt or
Motor
Drive



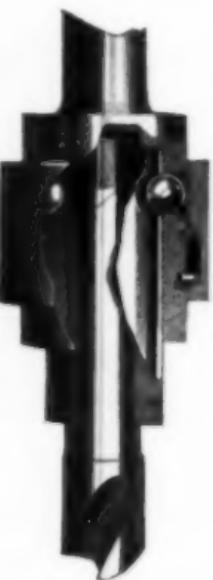
This great manufacturers' drill combines the speed of the sensitive with the flexibility of the radial, for practically all drilling requirements within its range. Drill the big pieces on the base and the small pieces on the table.

Tapping heads, power feed heads or hand lever feed heads may be used singly or in combination.

The drive is positive, through gears and silent chain. The spindle has three speeds and is bored for No. 2 Morse taper.

*A thorough investigation of this machine will repay you.
We shall be glad to furnish complete data upon request.*

The Taylor & Fenn Co.
Hartford, Conn., U. S. A.



"Titan" Positive Drive Quick Change Drill Chuck

Simply strike the end of drill, and out it comes. A one-armed man can do it.

Operates in any position—highly efficient on horizontal and inverted spindle machines.

The broken tang collet gives a positive drive to drills with broken tangs.

Made in sizes No. 0 to No. 5 for any taper shank drill, counterbore, reamer or similar tool. Saves time; saves drills; cuts costs.

*It has other superior qualities
Write for descriptive price list*

Titan Tool Company
Erie, Penna.

Multiple Drilling

On Your Single Spindle
Drilling Machine

Do your multiple drilling in any pattern on a single spindle drill with a

U. S. Multiple Spindle
Drill Head

Made regularly with 2 to 6 adjustable spindles. Special heads made to your order, with adjustable or fixed spindles.

*Let us help you make
a worth-while saving*



The United States Drill Head Co., 1952 W. Sixth St.,
CINCINNATI, O.

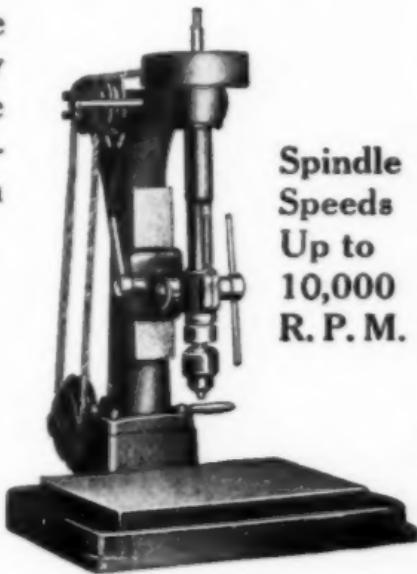
Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

Don't Forget—

Wood, Fibre, Rubber,
Paper, Mica, Bakelite

as well as the
ordinary
metals can be
drilled to ad-
vantage on the

Leland-Gifford
Super-
High-Speed
Ball Bearing
Drilling
Machine



Spindle
Speeds
Up to
10,000
R. P. M.

Write us about this Drill to speed
up your drilling operations.

Ask for Bulletin No. 502

Leland-Gifford Co.

Worcester, Mass.,

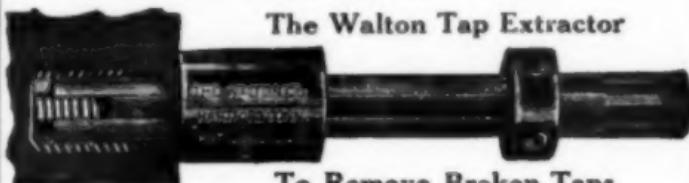
U. S. A.



We, Too, Are Strong for Economy

That's Why We Recommend—

The Walton Tap Extractor



To Remove Broken Taps

IT IS ESTIMATED that about 90% of all taps break while in service. Removing the broken parts quickly and without doing damage to the work, is often a fine art, but a "Walton" makes it easy—easy for even a "dub." Soon earns its small cost over and over. Sizes No. 8 to 1 1/4".

*We'll let you have one on 60 days' trial.
If it doesn't make good, you may return it.*

THE WALTON CO., Hartford, Conn.



Drill Press Attachment

FOR

Driving Screws and Nuts
Several Sizes

Manufactured By
N. A. Strand & Co.
CHICAGO
5001 North
Lincoln
Street



Drive
Them Down
by Power



Something New



The Pedrick Boring Unit

This picture of drilling an overhead beam is only an indication of what the Boring Unit can do. It is intended more for other work than for drilling, but to get the whole story, write for a circular.

The Boring Unit removes the limitations from the portable boring bar, and reaches a field of work that otherwise requires the largest machine tools.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners,
Portable Millers, Pipe Benders, etc.



The Positive Elimination Of Tap Breakage—

Is something we all have been looking for but have found it difficult to get until the advent of the "Woodstock."

The Woodstock Improved No-Tap-Breakage Chuck

—automatically releases tap the instant it binds or strikes bottom. Utilizes up to 95% of strength of tap, with positive assurance it will not break. A small boy can adjust it. Will save time, temper, labor and money in your shop.

Write for details and trial offer

Peter Bros. Mfg. Co., 115 Railroad St.,
ALCONQUIN, ILL.

Patented
Jan. 30, 1917



"Autex" Extension Reel

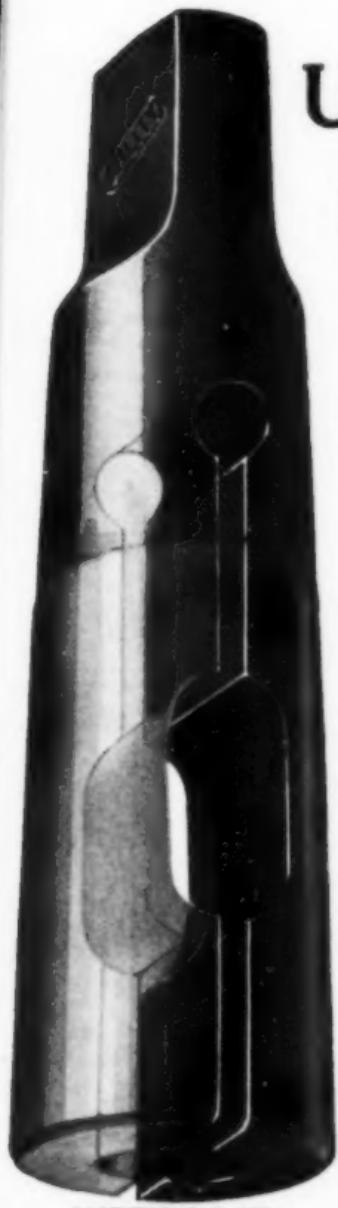
Rapidly finding a place in the largest industrial plants, machine shops, service stations, etc., in the U. S. Used for both electric lamp and power extensions.



Type 6

Approved by Underwriters
Write for descriptive circular

The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio



PATENTED MAY, 1919

The Utility Sleeve

**A Detachable Taper Shank
For Straight Shank Tools**

Its use. When used with the Utility Sleeve, straight shank drills, reamers, taps, etc., work as efficiently as solid taper shank tools.

Saves small tool cost. The saving in small tool cost is enormous, because only the straight shank tool of high speed steel is discarded when worn or broken, and not the entire taper shank tool.

Cuts chuck costs. It saves the cost of expensive chucks with straight shank tools, as the Utility Sleeve drives them efficiently without the use of screws or wrenches.

In operation, it drives the tools true and positive, saves time, saves money and increases production.

Its construction is unexcelled. It is made of 3½ per cent nickel steel, accurately machined and properly heat treated. Every Utility Sleeve is also tested and absolutely guaranteed.

*Write for our complete
Catalog of Utility
Interchangeable Tools*

The J. C. Glenzer Company

6469 Epworth Blvd., Detroit, Mich.

ARMSTRONG Complete Line of RATCHET DRILLS

Packer, for rough service; *Standard*, for general use; *Weston*, extra heavy; *Universal* and *Short Ratchet*.



Write
for
our
Ratchet
Drill
Catalog

The Armstrong Universal

The "Universal," shown above, may be used in awkward corners and confined spaces where other Ratchets are useless. Often pays for itself on a single job. Simplest, strongest, fastest.



Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

T.H.L. Front Lever Bench Punch

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work.

PRICE \$45

Extra Punches, 20 cents each;
extra dies, 30 cents.

Capacity 13/32" thru 1/4" steel,
11/32" thru 5 16". Punches up
to 1.2". Weight, 70 lbs.

A good buy; can ship promptly

**T. H. LEWTHWAITE
MACHINE CO.**

(Est. 1890)

417 E. 31st St., NEW YORK



NATCO

Straight Shank
Adjustable
Holders



Economy
Convenience
Durability

Write for Circular

The
National Automatic Tool Co.
Richmond, Indiana

Steel Bearing Balls

Brass, Bronze, Aluminum
and Monel Metal Balls

Steel
Burnishing
Balls



Burnishing
Cones
Burnishing
Pins

Immediate Shipments from Stock

Ask for Price List 23-H

The Abbott Ball Company
Elmwood District. Hartford, Conn.

Speed — Uniformity — Finish

In Riveting



Speed:—One rivet per second.

Uniformity:—Each rivet headed with same degree of tightness or looseness as desired.

Finish:—Perfectly formed, highly polished heads—no hammer or tool marks.

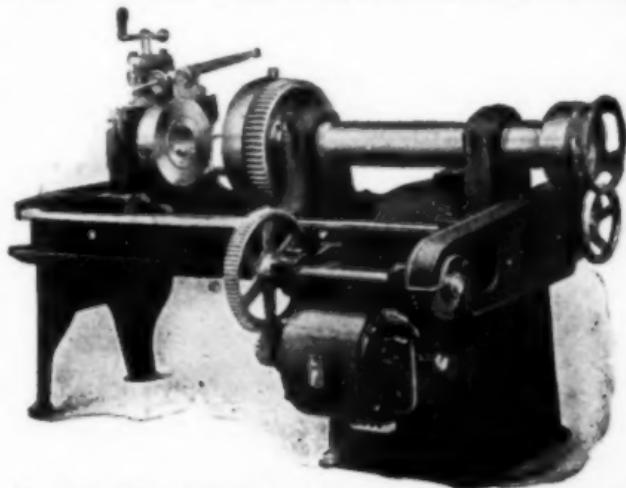
Grant Noiseless

Rotary Rivet Spinners are the only machines built which will accomplish the above, and they may be *operated by cheap help*.

*Ask for Catalog, showing several styles
Also send samples of work for riveting*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

B & Ks for Your Pipe in 1925 Will Mean Rock-Bottom Economy



No. 3 Peerless Improved. Motor Drive. Cap. $\frac{1}{4}$ " to 3".

B & K pipe threading and cutting equipment in your shop will assure you of dependable economy throughout the year. They have been successful manufacturing tools for forty years, and the 17 styles and sizes are the embodiment of efficiency and accuracy. They thread pipe from $\frac{1}{4}$ to 18 inches in diameter.

The features that give B & Ks their marked superiority are described in our Catalog. Let us mail you a copy, so you can see how speed and accuracy are built right into the machines. No matter how elaborate or small your requirements, we can furnish the machine that will save you time, labor and money.

Let us help you nail down that economy for 1925

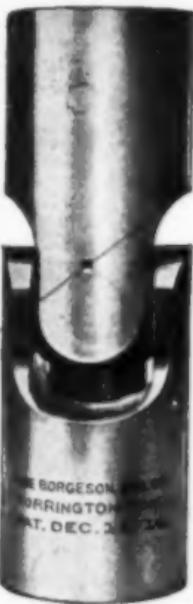
Bignall & Keeler Machine Works
EDWARDSVILLE, ILL.

Sales Agents: Manning, Maxwell & Moore, New York, N.Y.

CHICAGO
BUFFALO
BOSTON
DETROIT

SYRACUSE
CLEVELAND
PITTSBURGH
PHILADELPHIA

ST. LOUIS
ATLANTA
SEATTLE
SAN FRANCISCO



"Borgeson Universal Joints"

Are you a user of Universal Joints?
If so!

Remember well and bear in mind that a good Universal Joint is hard to find. But if you want one tried and true, you will want the "Borgeson" before you are through.

You will become not only a "Buyer" but a "Booster" for "Borgeson."

SIZES: $\frac{5}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$,
 $1\frac{1}{2}$, $1\frac{3}{4}$, 2, $2\frac{1}{2}$, $2\frac{3}{4}$.

Should you require Special Universal Joints, be sure to write for quotation.

*Complete description gladly
furnished upon request*

The Borgeson Mfg. Co., Inc.
Torrington, Conn.

Vanderbeek Giant Joints



Efficient to
an angle of
45 degrees

Vanderbeek
Universal
Ball Joints

Tested by Time

Used by U. S. Gov't. and Best Shops

These joints are entirely enclosed against dirt, are self-oiling, have all wearing contacts of hardened steel of large diameters, and designed for the most severe strain.

American Tool Works, Inc.
Hartford, Conn.

"WHITNEY"

Silent Chain Drives



"WHITNEY SILENT CHAIN DRIVES" are positive, yet flexible. They operate on very short centers and deliver practically every ounce of power to the driven shaft.

Let us fit the drive to the job

THE WHITNEY MFG. CO., - HARTFORD, CONN.

NEW YORK
L. C. Biglow & Co., Inc.
243 W. 55th St.

PITTSBURGH
Pittsburgh Gear & Mch. Co.
27th & Smallman Sts.

BOSTON
George C. Steil
727-A Boylston St.

SYRACUSE, N. Y.
George McPherson
201 Norwood Ave.

PHILADELPHIA
R. J. Howison
624 Race St.

SAN FRANCISCO
A. H. Coates Co.
615 Howard St.

SEATTLE, A. H. Coates Co., 1115 E. Union St.



No. 218-DC

ANGLE STEEL STOOL CO.

Builders of

**Factory and Shop
Steel Equipment**

PLAINWELL,

MICHIGAN

*Write
for
Catalog*



No. 5-26 Bench Legs



No. 4 D. S.
All Steel Stool—Any Height

OMIT the Lift! Lug!! Labor!!!



Install Can Ton Cranes in
your shop and you will
effect a brand new saving
in the New Year, because

**One CanTon Crane,
Hoist and Truck—**

with a one-man crew,
will save the time of 6 to
10 strong men. Also
temper and bruises. Your
choice of several sizes.

Write for Booklet E-8

Canton Foundry and Machine Co.

Canton, Ohio

New York Office: 203 East 15th Street, Second Floor

Tribloc Hoists

(SPUR GEAR)

Almost Unbreakable



All parts are made
of Drop Forged Steel
and Malleable Iron.

Capacities from $\frac{1}{4}$ to
20 Tons.

We also build a
complete line of
I-beam Travellers,
Screw Hoists and
Differential Hoists.

*Write for
Catalogue 5A*

**Ford
Chain Block
Co.**

PHILADELPHIA

Builders of Better Hoists

Compact—Sensitive—Accurate—Durable
The "ATLAS JUNIOR" INDICATOR

Reads over a range of 0.055"—at a glance. Dial may be set at zero after adjusting to work. Contact point can be locked in position for inspecting. Keep it in your pocket and use it anywhere. Details?

PRICE \$7.50



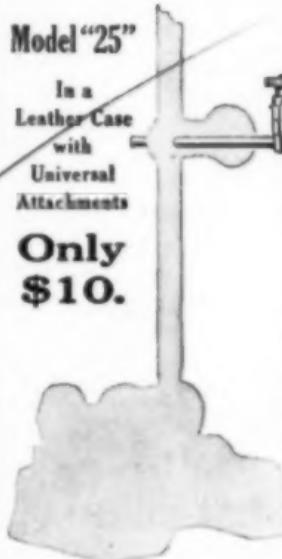
Sold by Dealers or Direct

WALLACE BROS.
160 N. Wells St., Dept. B.B. CHICAGO, ILL.

Model "25"

In a
Leather Case
with
Universal
Attachments

**Only
\$10.**



On a Surface Gauge

FEDERAL
Dial Indicator

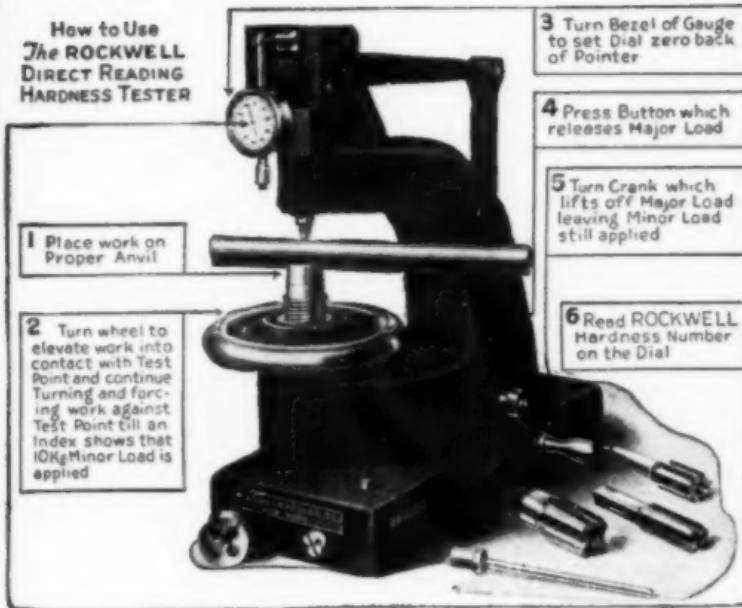
Adjusts instantly to any desired position on a surface or height gauge; also for checking lathe, miller, grinder, shaper or planer work.

Send for our complete catalog of Dial Indicators, Cylinder Gauges, Comparators, Thickness Gauges, Piston Gauges, Rubber Gauges, Piston Pin Gauges, Fabric Gauges, Paper Gauges, Wire Gauges, Piston Ring Gauges, Thread Lead Gauges.

Federal Products Corporation

Elbow & Chestnut Sts., Providence, R. I.

How to Use
The ROCKWELL
DIRECT READING
HARDNESS TESTER



We who make the Rockwell Hardness Tester make also the highest grade of electric Pyrometers, yet we know that the correct hardening furnace temperature is not enough to mean proper hardening. When the hardener is too slow in quenching or when your steel is of an unknown kind, you need a Rockwell Tester to check your hardening for, after all, the proof of the pudding is in the eating. Let the Rockwell have a bite at the hardened piece and it will tell you quickly and surely just how hard it is.

The Rockwell tests the greatest variety of shapes and sizes. It is a combined press and micrometer. It is a mechanic's job for mechanics to use.

WILSON-MAEULEN COMPANY INC

Makers of Pyrometers and Hardness Testers

St. Mary's St. & Concord Ave., New York City

POWELL BLOW GUN

Designed to dispense air with utmost economy.
Used for cleaning machines, machine tools and work benches.



Made with different tips for special requirements.

Circular on request.

The Wm. Powell Co.

2525 Spring Grove Ave., Cincinnati, O.

Single Unit Heat-Treating Furnaces

Forge, Semi-Muffle, Full Muffle
and Combination Types



Furnaces for annealing, carbonizing, melting, hardening and tempering; in a full range of sizes to meet the needs of the small tool room or machine shop, as well as the largest manufacturing plant.

*Ask the man who uses one;
if you don't know him, ask us*

A. B. KIDDER, 1104 5th St., N. E. CANTON, O.



The Old Way

Results in damaged shafts, bushings, pins and other parts, as well as accidents to the workmen.

With Nicholson Arbor Presses

all of these losses and accidents are eliminated, and considerable money is saved. Made in five sizes that take work up to 20" in diameter and 31" high and exerting pressures up to 9,000 lbs. Can make immediate delivery on all sizes and will be glad to send any size on trial.

Nicholson Expanding Mandrels

Save space—A set of nine does the work of several hundred solid mandrels.

Save time—Instantly fit any hole, round or square, from $\frac{1}{2}$ " to 7".

Save labor—No need to caliper a dozen or so solid mandrels, or turn one down to fit certain job.

Write for literature and 30-day trial plan

W. H. Nicholson & Co.
117 Oregon St., Wilkes-Barre, Pa.



Re-Arranging Your Shop?

Don't Dismantle Shafting
to Cut the New Keyseats



Use a
BURR
Portable
Keyseater

Cuts accurate
keyways up to
12" long any-
where, in any
position, in shafts
up to 5" diam.

Seven sizes. Operates by hand or power.

Over 9000 in Use—Order ONE for the NEW YEAR!

JOHN T. BURR & SON
422 Kent Ave., Brooklyn, N. Y.

A THRILL IS WHAT YOU GET WHEN THIS KEYSEATER

works for you. It mills keyseats of uniform width and depth with parallel sides and parallel with the axis of the bore.

All you need is Catalog O

National Machine Tool Co.
2268 Spring Grove Ave., Cincinnati, O.

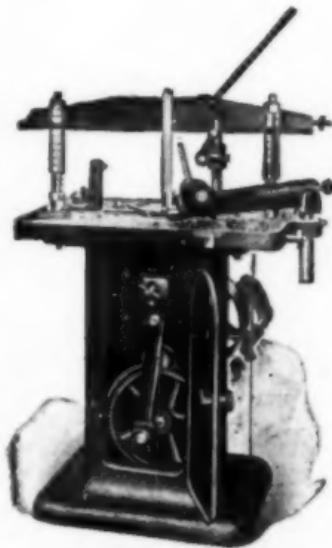
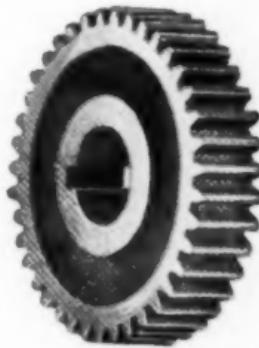


How About Keyseating?

You must have in your shop a good many

Keyways

like th's
to cut—



No. 1 Keyseater

If so, there's nothing quite so satisfactory as

The Davis Keyseater

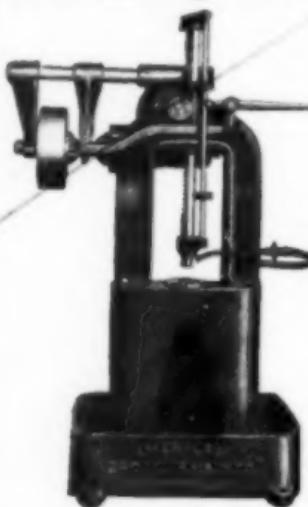
For cutting keyways in pulleys, gear blanks, bell cranks, crank handles, etc., and for slotting, oil grooving and similar work.

*Made in two sizes—
No. 1, Cap. $\frac{1}{8}$ to 1 in.
No. 2, Cap. $\frac{1}{8}$ to $\frac{3}{8}$ in.*

*The Keyseater for production, economy and profit
Let us tell you about it—no obligation.*

Davis Keyseater Company
255½ Mill St., Rochester, N. Y., U. S. A.

American 18" Vertical Broaching and Assembling Press



Pressure, up to 6 to 8 tons.

Maximum stroke, 18 inches.

Floor space, 4½ ft. square.

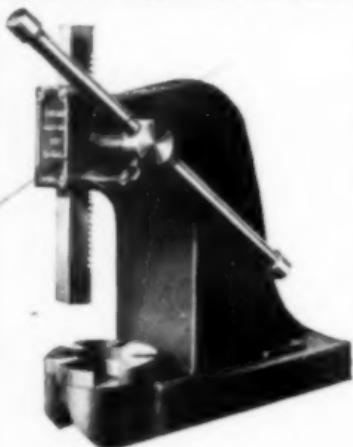
A thoroughly efficient machine, of simple construction, sold at a moderate price, which will do your broaching quickly, economically and satisfactorily.

Write for full details

**American Broach
and Machine Co.**

Ann Arbor, Michigan

Sheldon Arbor Presses



Semi-Steel Frames.

**Alloy-Steel Rams and
Pinions. Heat Treated.**

Large Stub Teeth.

**Square Rams, carefully fitted, insuring
proper alignment.**

*Ask for complete cata-
logue and price list*

SHELDON MACHINE COMPANY

403 East 29th Street,

CHICAGO, ILL.

The CATLIN—Simplest Keyseater in the World



Faster Keyseating
Cheaper Keyseating
Accurate Keyseating
Simplest Operation
Greatest Durability

Has less than half
the number of
parts of other
keyseaters.

Either direct-connected motor or
belt drive.

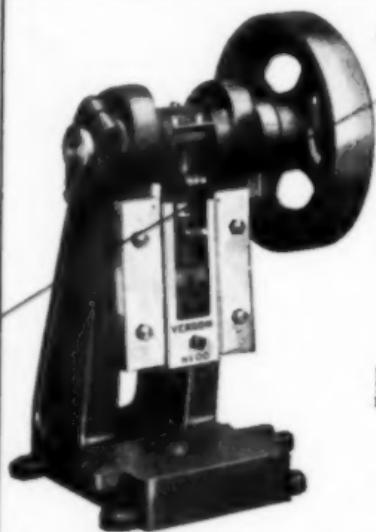
A size for every
class of work.

So simple in construction, so rapid in operation, and withal so durably built, that the Catlin is easily the most efficient and economical Keyseater made today.

The picture shows the No. 1 Catlin, belt driven, with three-step cone pulley. Our other sizes, for belt or motor drive, cover practically every modern keyseating requirement.

We invite your inquiry. Glad to mail you a partial list of big plants now using CATLINS

Chattanooga Machinery Company
2401 Bennett Ave., Chattanooga, Tenn.



Trade **Verson** Mark

Is a symbol of
QUALITY
found only on *Verson*
Power Presses
Arbor Presses
and
Angle Shears

For the prevention of accidents
insist on *Verson* presses.

They are equipped with an
Automatic Safety Clutch

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La Salle Machine Works

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CHICAGO, ILL.

SOMETHING NEW



**Hand Power Presses, Shears, Notchers,
Punches and Dies, Etc.**

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J.F. Kidder Mfg. Co., Burlington, Vt.

Angle Iron Combination No. 455

SPEED
Notches
and
Bends
a
2-inch
by
2-inch
by
 $\frac{1}{4}$ -inch
Angle
Iron
in
One
Minute
Flat



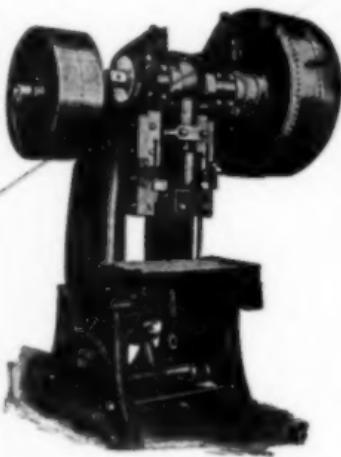
CAPACITY
Shears
Notches
and
Bends
2-inch
by
2-inch
by
 $\frac{1}{4}$ -inch
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A unit of this Angle Iron Working Machinery completes your up-to-date shop equipment. Absolutely dependable. No changing of die. Always ready to use.

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A Loshbough - Jordan Press cannot be overloaded while operating within its rated speed. Any shaft or frame broken under these conditions and within year of purchase will be replaced gratis.

Many features for convenience and safety of operator; long, satisfactory service; quality and volume of output excellent.

*Let us tell you about them
—or better, let us send a
press on 30 days' trial.*

**Loshbough - Jordan
Tool & Machine Co.
Elkhart, Ind.**

The Only Difference

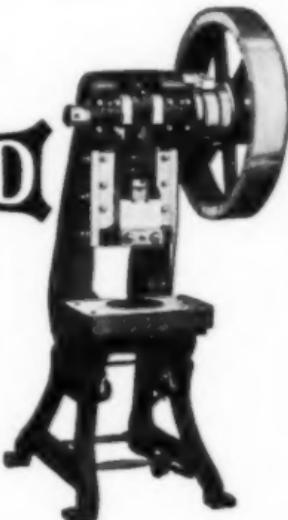
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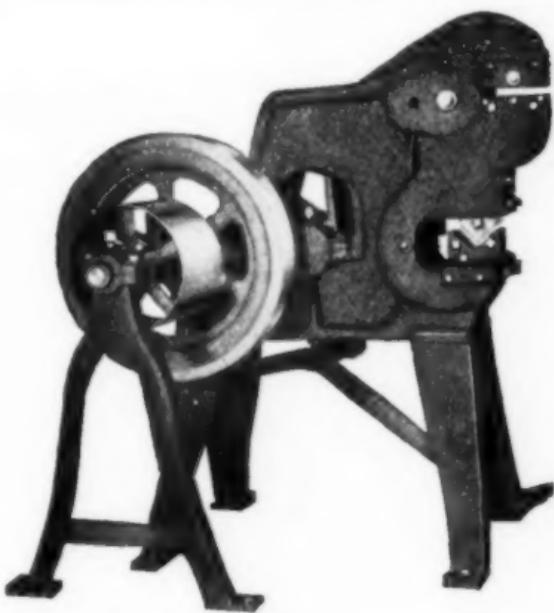
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ROCKFORD
PUNCH PRESSES

will give you a new idea of what you should get in punch press service. Definite, dependable reliability under all working conditions.

Write today for complete construction details.

Rockford Iron Works
ROCKFORD, ILL.





No. 52—Built in Seven Sizes
BELoit
Combined Power Punches and Shears
Series 51 to 56

The Beloit Combined Power Punches & Shears offer an unequalled combination of simplicity of design, construction, range of capacity, and moderate initial cost.

Invaluable in any plant for punching, shearing and fabricating steel bars or structures.

An indispensable equipment for the manufacture of automobile springs and bumpers.

Tell us about your Punching and Shearing requirements. Our line is extensive, and we have a Beloit Machine for your work.

Send for our new catalogue No. 11 which describes the Beloit line of Punches, Shears and Bending Rolls.

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Jacobs
Chuck

Bench Drills Have



No. 2-A Jacobs Chuck
is standard equipment

The floor drill, the bench drill
and each affords an economy.

A good bench drill handles
facility and economy, and
chine by saving steps and time.

The "Buffalo"

—which is shown in the picture—
holes up to $\frac{3}{8}$ ". It has a
speed changes are easily
pulleys. It is recommended
garage men, or wherever

For full description

BUFFALO FORGE COMPANY,

*This advertisement is
in the interests of good Drill
by the makers of the J*

Select your



Drills Have A Value All Their Own

The bench drill and the portable electric each has its place, as an economy all its own on work that is best adapted to it.

The bench drill handles many kinds of small work with the greatest economy, and often it is a valuable adjunct to the larger machines, saving time and steps and time of waiting.

"Buffalo" 10" Junior 2-Speed Bench Drill

Now in the picture, is a high grade tool of this type for drilling

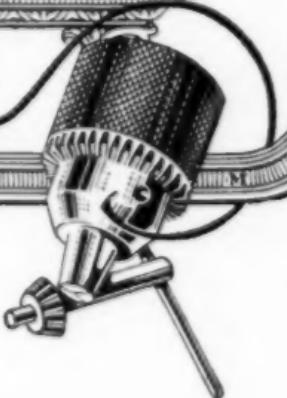
It has a one-piece frame and an 8" adjustable table. The carriage is made by a novel arrangement of two sets of cone gears, designed for pattern makers, tool makers, machinists and wherever small accurate work is required.

If you desire further information concerning the "Buffalo" 10" Junior, write to—

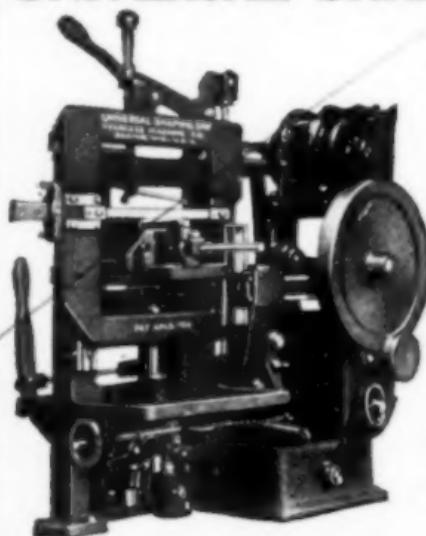
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Buffalo, N. Y.

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the Jacobs Chuck

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Latest and Most
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Faster — More Accu-
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Cap. 6"x6" & 13"x13"

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6"x6" 9"x9" 13"x16"
Sturdy--Efficient--Reliable

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ROTARY SHEARS

MADE IN VARIOUS SIZES AND STYLES

For cutting all gauges of sheet and plate up to 1 inch thick used in building Ships, Boilers, Cars, Tanks and General Plate and Sheet Metal Work. Cut square or beveled edges in straight or irregular shapes, also cut rings and discs, and cut openings without starting in from side of sheet. Leaves the metal flatter than any other Rotary or Short Straight-Bladed Shear. Cuts a clean edge that requires no finishing.

Joggling and flanging rolls can be used interchangeably with the cutters.

**Do Long Straight Cutting Faster Than Any
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One “QUICKWORK” does the work of a number of old style machines
Does it better and from two to ten times quicker

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Danly Standard Die Sets cost from 15 to 50% less than you now spend to make your own. Each is a tool of precisional accuracy, combining every known refinement.

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*Die Sets
Dowel Pins
Leader Pins
Bushings
Clamps
Auto-Gages*





Nos. 1, 2 & 5

When All Is Said

and done, you cannot beat our line of tools for cutting sheet, bar or round rods in iron or mild steels.

You can use our line of

Hercules' Shears and Rod Cutters

For cutting card, straw and fibre boards, brass and copper, gold and silver sheets, and hard rubber compositions.

Catalog No. 2 on request.

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HARTFORD, CONN.



Plain Shears Nos. 3 & 4



Style "WC"



Style "O"



The Hinge



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GITS GRAVITY AND WIRE WICK FEED OLTERS

Gravity Feed—flushes
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Wire Wick—replaces
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Made in Standard sizes.



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Marvel No. 1 Hack Saw

Capacity 4"x4"

A splendid, efficient saw for use where large capacity is not essential. Order now.



MARVEL No. 2 hack saw with swivel vise that swivels both ways, right or left, and has adjustable stroke.

CAPACITY: 6"x6" on long stroke.
8"x8" on short stroke.

The ideal saw for all around general work. Place your order with us today.

Both these saws can also be furnished motor driven

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Saves Time and Material

Cuts Hardened Steel Rods or Bars, Reamers, Taps, Copper and Brass Tubing, Aluminum, Etc., Quickly, Smoothly and Without Waste

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—is a big economy in the tool room or wherever such material must be cut. Has a rapid, thin, clean cut. Doesn't draw the temper, saves grinding, saves time and much valuable material. Soon earns its cost.

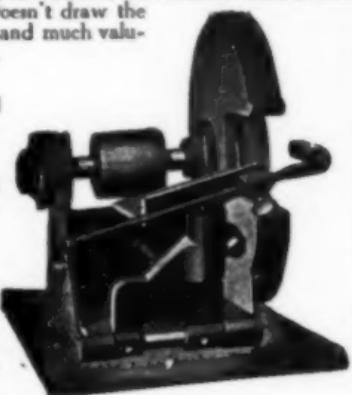
8" Size \$22.50, with C. S.
Splendid for tool rooms. Cuts all high-speed steel up to $\frac{5}{8}$ " square.

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Cuts up to 2 $\frac{1}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

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The Correct Guide in Cutting

Your request on your letterhead will bring this authoritative chart.

RACINE "JUNIOR"

Portable High Speed Metal Cutting Machine, easily moved to any location near electric light socket. Smooth, vibrationless, need not be bolted to floor. Normal capacity 0 to 4".

Use "Racine" H. S. Wood and Metal Band Saw Blades & "Racine" H. S. Tungsten Power and Hand Hack Saw Blades. **Catalog H.**



Racine Tool & Machine Co.
1429 Junction Av., Racine, Wis.
"STANDARD THE WORLD OVER"

times it is employed per day, and this, again, by the labor cost per hour, and you can easily estimate the saving for a month or a year.

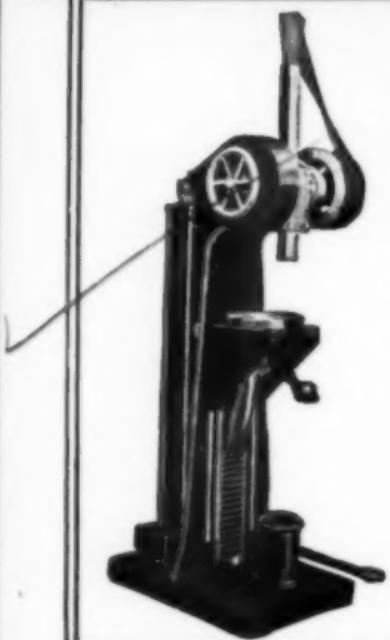
EFFICIENCY ENGINEERS have figured this out with great care, and they say that the average truck pays for itself every two or three months, *earning about 500% a year.*

I, the Towsley Truck,

—am such a good truck, because my makers believe that anything which earns 500% a year deserves to be well made. They believe it is economy to build me the best they know how—not to sell at a price, but to last the longest, to give the best service, and to earn the largest dividends. And that is why I have been adopted in so many plants as their standard truck equipment.

*Write to my makers. Tell them your requirements.
Let them help you make money. They are the—*

John T. Towsley Mfg. Co.
1036 Woodrow St., Cincinnati, Ohio



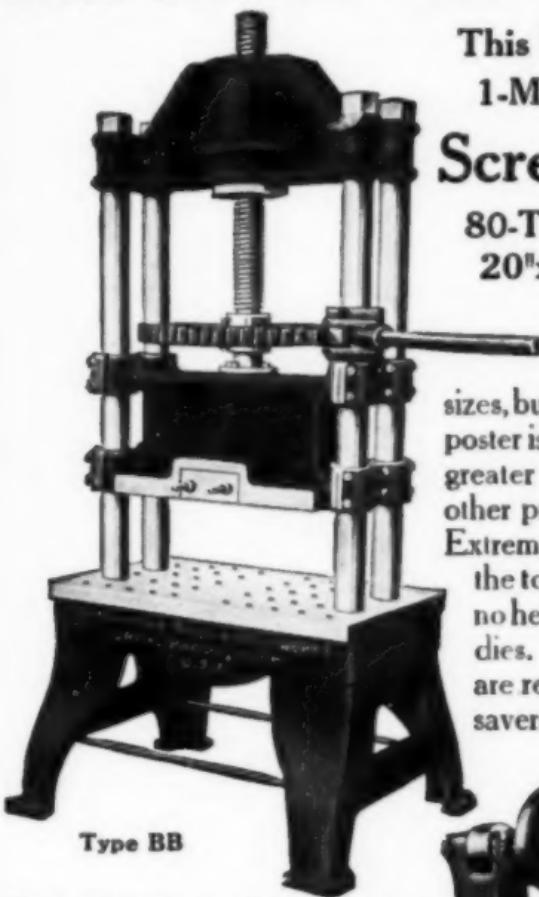
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Illustration shows our No. 55 Power Drive Press, which is adaptable for fast production work and capable of supplying ten tons pressure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.
Department B,
Kalamazoo, Michigan

Best for Heaviest Work—



Type BB

This Up-To-Date
1-Man 4-Post
Screw Press

80-Ton Pressure
20"x36" Table

We also make three smaller sizes, but this sturdy four-poster is stronger and has greater rigidity than any other press of this type. Extremely convenient—the toolmaker requires no help in handling the dies. All four sizes are real time and labor savers.

This Surface Grinder

is a revelation in quiet efficiency. Powerful, rigid and accurate. Has non-vibrating wheel. Both feeds have graduated dial.

Economy Tools. Write for Details

**JARECKI MACHINE
AND TOOL CO.**

Successor to Manhattan Machine & Tool Works
Dept. A. GRAND RAPIDS, MICH.



STANDARDIZED
"RENOLD-BOSTON"
SILENT CHAIN DRIVES



1 to 30 H. P. in Stock
Larger Drives to Order

A SUPERIOR PRODUCT

An efficiency of 99.5% is possible, but even under commercial conditions the efficiency will approximate 98% without appreciably diminishing throughout the life of the drive.

MACHINE TOOLS REQUIRE POSITIVE AND DEPENDABLE DRIVES

"R-B" DRIVES FULFILL THIS NEED

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Second-Hand Machinery

Lists of Second-Hand Machinery, either For Sale, Wanted or For Exchange, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool Blue Book advertisers.

FOR SALE BY

A. M. Stoehr Machinery Co.,

Blue printing and drying machine.
Boring mills, 42" Baush, 54 & 60"
Niles, all have 2 heads, and others.
Drill presses, 1 spindle Sigourney;
12" 4-spindle Barnes; 22" Barnes,
with tap. attachment, and others.
Gear hobbers, cutters: 12" Cincinnati;
48" & 60" Gould & E., and others.
Grinders, Heald piston ring (4);
Nos. 1 and 3 LaSalle plain
and surface; 3" x 18" Norton, and others.
Hammer, 500 lb. Beaudry, & others.
Lathes, 22" to 44" McCabe; 9x42
Barnes; 14x6 Rockford, q.c.g., late
type; 18x8 Barnes heavy duty; 15
& 24 spinning, and others to 60".
Milling mch's., No. 25 Becker plain;
No. 0 Bristol hand; No. 0 Rockford
plain; No. 2 Van Norman duplex;
No. 3 Thurston dieing, and others.
Oil extractors, centrifugal, (8).
Pipe machines, 2" & 6" Jarecki.

560 W. Adams St., Chicago, Ill.

Punch and shears, No. 5 Long & A.
double end, 4" thru 4"; No. 14 W.
double end, 15" thrt., and others.
Punch presses, No. 16 Bliss horning;
No. 3 Bliss Stiles; No. 18 Bliss,
o. b. i.; No. 4 Robinson, o. b. i.;
No. 4 Long & A. multiple punch.
Rolls, 10' Bertsch, pipe forming.
Saws, 9x9 Sterling high speed; 12x12
Racine high speed, and others.
Screw machines, Nos. 2 & 3 Foster
(12); Nos. 52 & 53 Acme; No. 0
Brown & Sharpe; 9—No. 2 Brown
& Sharpe, others plain and univ.
Screw threader, No. 10 Waterbury.
Shapers, 18" Flather, crank; 24"
Kelly, b. g.: 24" Rockford, b. g.
Shears, No. 3 N. D. splitting, 2" cap.;
Pittsburgh alligator, 1".
Welders, both spot and butt.
Wire strai'tg mche., 3/16" Shuster.

FOR SALE BY

B. L. Saltzman,

524-526 W. Van Buren St., Chicago

MOTORS.

New $\frac{1}{2}$ h. p., 1 phase, a. c., 110 volt.....	\$10.00.
New $\frac{1}{2}$ h. p., 1 phase, rep. ind., 110/220 volt.....	32.50.
New 1 h. p., 1 phase, rep. ind., 110/220 volt.....	50.00.
New 1 h. p., 3 phase, 60 cycle.....	40.00.

LATHES.

18" x 8' Flather.
14" x 6' Sebastian.
14" x 6' American.

2x26 Pratt & Whitney, late model
turret lathes, (2).

Pratt & W. auto. screw mch's., (4).

20" Milwaukee.
20" Champion.

3 spindle Sigourney.

DRILL PRESSES.

PUNCH PRESSES.

Punch presses, all sizes from No. 1 to No. 5.

TINNERS' TOOLS.

Brake, 8 ft., 14 gauge; and other
sizes.

Folders, all sizes.

Square shears, hand and power.

MISCELLANEOUS.

Bolt threader, Wells, single and
double head.

Miller, No. 12 Kempsmith universal.

Boring mill, 30" Colburn.

Screw machine, No. 2 Foster.

Miller, No. 1 Kempsmith plain.

Screw machine, 3" x 1" Brown &
Sharpe automatic.

We have for sale a large line of woodworking and ironworking machinery.

Write us today for what you want, as we have many bargains.

SECOND-HAND MACHINERY

FOR SALE BY

Cyril J. Bath & Co., 1738 St. Clair Ave., N. E., Cleveland, O.

BOLT CUTTERS AND PIPE MACHINES.

- 1" Acme, style B, with dies, 75%.
4" Acme, single head, complete with equipment of dies and lead screws, 75%.
4" Jarecki No. 44, with dies and c. s., pipe turns, die stationary, 85%.
8" Jarecki No. 88, with dies and c. s., pipe turns, die stationary, 85%.

BORING MILLS—VERTICAL.

- 44" Niles, double swivel head, single pulley drive, 90%.
2-60" Bullard, 2-head, standard, 60%.

DRAW BENCHES.

- 15,000 lbs. to 25,000 lbs. Waterbury-Farrel, United Engineering and Standard; 20' draw, with 18' extensions for mandrels, heavy cast iron; 80%.

DRILLS—MULTI-SPINDLE.

- 4-spindle Barnes, all geared.

- 4 spindle 20" Barnes, cone drive, 85%.

- 4 spdl. No. 4 Colburn, arr. for motor dr., all grd., cap. about 3" in steel, 90%.

DRILLS—RADIAL.

- No. 3, 10' Cleveland Punch & Shear wall radial; No. 1, 8' wall radials.

DRILLS—UPRIGHT.

- 20" Mechanics and Rockford.

- 28" Cincinnati, sliding head.

- 24" Rockford, as above.

- 30" Aurora, sliding head, 60%.

- 24" Kokomo hi-speed, sliding head,
75%.

- 32" Cincinnati, with tap. att., 75%.

- 24" Aurora, sliding head, b. g.

- 24" No. 25 Foote-Hurt pl. comp.tbl.

- 24" No. 25 Foote-Burt 90%, (5).

ELECTRICAL EQUIPMENT AND MOTORS.

- No. 9-200 k. w. General Electric generator set, 2300 volt, 60 cycle, 3 phase.
to 275 d. c.

- Motors, d. c., 1 to 25 h. p.

- Motors, a. c., 1/2 to 40 h. p.

TRANSFORMERS.

- 3 General Electric 50 kva type S 2200-220-110 2300-230-115 2400-240-120.
3 General Electric 25 kva type S 2200-220-110 2300-230-115 2400-240-120.
2 General Electric 20 kw type N Class 400-1600 Alternations Style 10235.
2 General Electric 15 kva type H Form K Cycle 60 volts, 2200-1980-110-220.
3 General Electric 667 kva 23000-2300
2 Adams-Bagnall 40 kva 60 cycle, 440-220-110, serial No. 45304 & 45304-544.
1 Adams-Bagnall 5 kva 60 cycle, 460-230-110, serial No. 41029.

FORGING MACHINES.

- 1" Ajax 75%, (2).

- 250-ton Mesta steam hydraulic, 85%.

- 3 1/2" Ajax iron body 85%.

HAMMERS.

- 600 lb. Merrill board drop, 95%.

- No. 6 Naze air hammer; frame cracked but patched in workman-like manner and in good operating cond., arranged for motor drive.

- 850 lb. Bell steam forging, 85%.

- No. 8 Beaudry, power, arranged for motor drive, 80%.

GRINDERS.

- No. 3 Brown & Sharpe univ., 70%.
10x36" Modern univ., and parts, 70%.

- No. 4 Gardner motor driven disc grinder, with discs, cup, wheeland press; 10 h. p. motor, 1200 r. p. m.; 220 volt, 60 cycle, 3 phase, a. c.

- 72" Diamond surface grinder, 85%.

- Yankee drill grinder.

- No. 75 Heald internal, with extra spindles and c/s, 85%.

- Washburn drill grinder, 70%.

LATHES.

- 14"x 6" Hendey tool room, & equip.
12"x 6" South Bend, 90%.

- 19"x 6" LeBlond friction hd., 60%.

- 12"x 5" Hendey tool room, & equip.
16"x 9" Lehmann.

- 24"x 12" Reed, belt feed, loose change gears 60%.

- 16"x 9" Chard with 2 chucks fitted.

- 28"x 14" Bridgeford geared hd.; 85%.

- 16"x 8" Lodge & Shipley, geared head, 90%.

- 32"x 18" Schumacher, cone head, 60%.

- 18"x 8" Lodge & Shipley, 70%, (4).

- 48"x 26" Bridgeford geared head, 9 speeds in head, taper att., 85%.

(Continued on next page)

SECOND-HAND MACHINERY

Cyril J. Bath & Co.—Continued

MILLING MACHINES.

Style "B" Gooley & Edlund, Briggs, Lincoln type, mfg., gear fd., 80%, (2).
 20" x 7" x 18" Oesterlein plain, 50%.
 No. 0 Steptoe plain univ. heads, 90%.
 No. 0 Rockford, power feed, arbor, vise, new.
 No. 1 Rockford pl. bk. geared, 90%.
 No. 2 Brown & Sharpe vertical, 50%.
 No. 2-A Brown & Sharpe univ., 75%.

PLANERS.

22" x 24" x 57" Fitchburg.
 24" x 24" x 6' Liberty, 1 head, new.
 30" x 30" x 8" Gray, single head, 80%.
 30" x 30" x 8" Gray, single head, 70%.

PRESSES.

55# Toledo straight side, single crank, tie rod frame, bolster 40" x 40", stroke 8", friction clutch, belt motor drive.
 DP-56 Ferracute straight side or trimming press; geared, arranged for side shear which has been removed and could be replaced. Stroke 5", die space 18", weight about 15,000 lbs.
 No. 6 Niagara, 3" stroke, 9 $\frac{1}{2}$ " die space; frame has been welded; arranged for motor drive.
 Double crank Niagara, light, 5" stroke, 9" die space, 48" between housing.

PUNCHES AND SHEARS.

No. 2 Hilles & Jones horiz. punch; 8" throat, cap. 4" x 4", belt drive, 70%.
 42" gap American ship punch, capacity 1" x 1", 70%.
 54" gap American ship punch, capacity 1" x 1", 70%.

SLOTTERS.

12" Sellers, 75%.
 10" Newton, with countershaft, 75%.

SAWS.

No. 3 Ajax hot saw and burning machine, complete, 80%.

SHAPERS.

15" Potter & Johnston, tilting table.
 20" American, crank, belt.
 21" Averbeck, no countershaft, 75%.

TINNERS' TOOLS.

39" Crimper.

SCREW MACHINES.

TURRET LATHES AND 24" Gisholt, late model, 85%.

21" Gisholt, standard model, 70%.

WOODWORKING TOOLS.

Emery wheel, No. 3.

SCREW MACHINES.

Pattern lathe, Fay & Egan 12".

SCREW MACHINES.

Planer, Fay & Egan, pony.

SCREW MACHINES.

MISCELLANEOUS.

SCREW MACHINES.

Face plate jaws for vertical boring mill, (4).

SCREW MACHINES.

Gear cutter, 36" Gould & Eberhardt.

SCREW MACHINES.

SECOND-HAND MACHINERY

FOR SALE BY

A. F. Strafer.

30 Church St., New York City

AUTOMATIC SCREW MACHINES.

Cleveland model A, 1 $\frac{1}{2}$ ", 2", 2 $\frac{1}{2}$ ", 3 $\frac{1}{2}$ ",
4 $\frac{1}{2}$ ", 6", 6 $\frac{1}{2}$ ".

National Acme Nos. 512, 52, 53, 54.

Fay auto., with air chuck.

New Britain Nos. 23 & 24.

Gridley, single spindle, 3 $\frac{1}{2}$ ".

BORING MILLS, VERTICAL AND HORIZONTAL.

51" Bullard, belt drive.

60" Niles-B.-P., vertical, s. p. d.

53" Niles-B.-P. rapid trav., a. c. m. d.

72" Cincinnati, massive type, m. d.

39" King turret head.

No. 3 Universal horizontal, s. p. d.

No. 2 Rochester, 3" bar, s. p. d.

Barrett cylinder No. 1.

DRILLS, UPRIGHT AND RADIAL.

6" Cincinnati Bickford plain.

4 $\frac{1}{2}$ " Dreses, arranged motor drive.

6" Cincinnati Bickford universal.

No. 310 Baker heavy duty.

4 $\frac{1}{2}$ " Morris, latest type.

25" W. F. & J. Barnes, b. g., p. f.

4" Western, motor drive.

No. 1 Barnes horizontal.

No. 2 Detroit driller, 5-spindle.

26" Sibley, b. g., sliding head.

GEAR CUTTERS.

72" No. 6 Brown & S. automatic.

26" No. 3 Brown & S. automatic.

36" No. 4 Brown & S. automatic.

48"x10" Gould & Eberhardt.

GRINDERS, CYLINDRICAL.

16x96 Brown & Sharpe plain.

72" Brown & Sharpe, crankshaft,

10x24 Landis self-contained.

10x30 Webster & Perks universal.

10x36 Norton plain.

6x24 Norton plain,

12x48 Modern, new.

6x20 Fitchburg plain.

GRINDERS, SURFACE AND HOLE

No. 16 Blanchard, motor drive.

No. 60 Heald cylinder.

P. & W. vert. surface, 12x36.

Springfield Brandis, 12x48.

No. 5 Diamond, 12"x72".

Abrasive Material, 22x18.

Heald No. 70 and No. 75.

No. 2 Brown & S., surface.

Bryant No. 10 and No. 10A.

Rowbottom 26" disk grinder

KEYSEATERS.

No. 7 Burr, cap. 1 $\frac{1}{2}$ ", routing attach.

No. 1 Baker, 12" stroke, 1 $\frac{1}{2}$ " cap.

LATHES, ENGINE.

44"x24" Niles-P.-B., t. g., belt drive.

36"x14" Harrington, low price.

32"x12" Mueller, low price.

28"x21" Flather, q. c. & taper.

24"-32"x16" Lodge & Shipley, q. c.

22"x12" Lodge & Shipley, g. h. s. p. d.

50" Henley pulley lathe.

20"x10" American, q. c. d. b. g.

Hendey tool room, 14", 16", 18".

18"x8" American, q. c.

LATHES, TURRET.

No. 2-A Warner & Swasey.

24"x28" Acme flat, bar equip.

3 $\frac{1}{2}$ "x36" Acme flat, chuck equip.

24"x26" J. & L. chuck & bar.

24" Gisholt, 6 $\frac{1}{2}$ " hole thru spindle.

18" Libby, s. p. d., and equipment.

2 $\frac{1}{2}$ x26" Greenlee, chuck equipment.

3 $\frac{1}{2}$ x36 Hartness, 2-spindle.

MILLING MACHINES.

Brown & Sharpe No. 3 pl. cone type.

No. 4 Cincinnati high power plain.

No. 3 Cincinnati h. p. vertical.

Ohio No. 3 universal, like new.

Brown & Sharpe No. 5 vertical

Newton 44"x12", slab.

Cincinnati 28" duplex, semi-auto.

P. & W. 2" and 4", spline.

PLANERS.

60"x80"x12" N.-B.-P., elec. rev. dr.

48"x48"x14" Patch, 4 h., motor d.

48"x48"x30" Putnam, 4 h., belt d.

28"x28"x10" American.

PUNCHES AND SHEARS.

No. 5 Quickwork rotary, mtr. dr.

No. 6 H. & J. 60" t. a. c. motor.

No. 4, H. & J. double, 48" t., a. c. m.

No. 5 H. & J., 48" t., a. c. motor.

No. 1 H. & J. double angle shear.

Lenox rotary bevel shear.

Niagara No. 307 rotary shear.

10" Ole 10 ga. squaring shear.

10' Loy & Narwarth, 1" capacity.

No. 6 H. & J., 32" t., belt drive.

PIPE AND BOLT CUTTERS.

Greenfield No. 734, 1 $\frac{1}{2}$ " capacity.

Greenfield No. 732, 1" capacity.

Curtis & Curtis, 2" to 10" pipe.

Jericki, 2 $\frac{1}{2}$ " pipe, a. c. motor.

SHAPERS.

25" Smith & Mills b. g. crank.

24" Potter & Johnston universal.

16" Milwaukee b. g. crank.

16" Smith & Mills.

SECOND-HAND MACHINERY

A. F. Strafer—Continued.

MISCELLANEOUS PLANT EQUIPMENT.

Air drills, Thor, \$20, to \$50.	Gas engine, 15 h. p. Novo 2 c., new.
Air hammers, 2" & 6", \$15.	Hammers, 3000 & 3500 lb. Bell steam.
Band saw, 42" American.	Header, Ajax, 14".
Brake, 3/16"x10' Loy & Narwarth.	Jointer, 12" American.
Brake, Tinsmith, 90'.	Rolls, 4"-20' N. B. P., a. c. motors.
Crane, 50 t., 86' span, P. & H., d. c.	Saw, No. 6 Nutter & B., a. c. motor.
Cylinder borers, 4-spdl. Brown & S.	Saw table, universal, American.
Electric drill, Cinci'ti 1", a. c., \$50.	Surfacer, single, 30" American.
Electric welding sets, G. E.	Tapping attach., 1" Errington, \$75.

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

14"x 6' Hamilton.	14"x 6' Reed, r. & f. rest.
14"x 6' Prentice Bros., s. b. g., l. c. g., with t. a., with 8" 4-jaw ind. ck.	18"x10' Star, 4-s. c., s. g., with 16" 4-jaw ind. chuck.
15"x 6' South Bend, c. r. complete.	14"x6' Monarch, c. r., standard.
16"x 6' South Bend, c. r. complete.	14"x8' Monarch, c.r., stand. pattern.
18"x 8' Prentice c. r., l. c. g., chuck.	

TURRET LATHES AND DRILLING

No. 1 Warner & S. p.h., a. c. and b.f.	SCREW MACHINES.
No. 2-A W. & S. g. h. tur. lathes.	No. 0 Brown & Sharpe auto.
No. 3-A W. & S. g. h. turret lathe.	No. 0 Brown & Sharpe auto. (3).
No. 3, 1½" Wood tilted turret.	No. 2 Brown & Sharpe auto. (2).
1½" Acme screw mch., p. f. to tur.	No. 2 Warner & S. p. h. screw mch., a. c. & b. f., p. f. to turret. (3).
26" Gisholt heavy duty turret lathe.	1" Biggs, p. h., a. c. & b. f.
2"x24' Jones & L. g. h. flat turret.	No. 4 W. & S., p. h., a. c. & b. f.

DRILLING

20" W. F. & John Barnes, stationary head, b. g. and p. f. (2).	MACHINES.
Henry & W. sgl. sp., h. s., b. b., ck.	4-spindle Leland-Gifford, h. s., b. b., with p. f. to each spindle.
No. 1 Minster high speed heavy duty, with pump.	6' arm Western radial, with tap. att., arranged for motor drive.
25" Superior, sliding hd., b. g., p. f., with tapping attachment.	20" W. F. & John Barnes, stationary head, p. l. f., (2).
24" Baker heavy duty.	21" Superior, stationary hd., p. l. f.

MILLING

No. 7 Becker plain.	MACHINES.
No. 26 Becker pl., without bk. grs., with power fd., pump and tank.	No. 1-Y Brown & Sharpe plain.
No. 1½ Rockford plain, with div. hd.	No. 22 Garvin, vertical spindle.
No. 24 Ohio plain b. g. complete.	Potter & Johnston dbl. table automatic production miller.

GRINDERS.

Type "DE" Hisey-Wolf internal.	Plain emery wh'l stand with column.
No. 11 B. & S. plain grinders. (2).	No. 1 W. & M. univ. cutter & reamer.

SHAPERS AND PLANERS.

22"x22"x 5' Putnam planers (2).	36"x36"x12' W. & P., two rail heads.
42"x48"x10' Sellers planer.	

METAL CUTTING TOOLS

Higley cold saw.	36" Niagara foot power squ. shear.
3" new Davis cutting-off machine.	30" Niagara foot power squar. shear.

GEAR CUTTERS AND HOBBERS.

26" & 36" No. 3 Brown & S. auto.	No. 12 Barber-Colman hoppers.
No. 13 Brown & Sharpe auto.	

HAMMERS.

Coffman post pwr.dr. hammer, 25 lbs.	Quickwork body hammer.
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MISCELLANEOUS.

Bench tapper, Montgomery, 1" cap.	Pipe mch., No. 1, 1" to 2" Williams.
Bench tapper, Hubbell, 1" cap.	Pipe mch., No. 3, 1" to 6" Williams.
Bolt cutter, 2" Morgan.	

SECOND-HAND MACHINERY

FOR SALE BY

Eastern Machinery Co.,

408 E. Pearl St., Cincinnati, Ohio

MILLING MACHINES.

- No. 3 Brown & Sharpe, universal, cone type, complete.
- No. 3A Brown & Sharpe universal, single pulley, complete.
- No. 2 1/2 R. K. LeBlond high power univ., cone type, complete.
- No. 2 Hendey-Norton universal, cone type, complete.
- No. 2 Garvin universal cone type, complete.
- No. 3-B Brown & Sharpe plain, single pulley.

LATHES.

- 12"x 6' Hendey tool room, with taper attach and collets.
- 14"x 6' Hendey tool room.
- 14"x 6' Lodge & Shipley, q. c.
- 16"x 8' American Tool Works high duty, geared head, q. c.
- 16"x 8' Hendey, q. c., all geared head, single pulley.
- 17"x 10' Greaves & Klusman, standard change gear.
- 18"x 6' National, q. c., single pulley, geared head.
- 18"x 8' Prentice Bros., q. c., single pulley, geared head.
- 18"x 8' Hamilton, standard change gear, with taper.
- 20"x 14' R. K. LeBlond standard c.g.

RADIAL AND UPRIGHT DRILLS.

- 5' Niles-Bement-Pond full universal radial, single pulley, gear box.
- 5' American Tool Works plain radial, gear box drive.
- 4' Western plain radial, gear box drive.
- 3' Western plain radial, gear box drive.
- 24' Cincinnati-Bickford plain radial, gear box drive.
- 25' Kokomo upright, sliding head, back geared, power feeds.
- 24' Cincinnati-Bickford upright, gear box drive, tapping attachments.
- 26" W. F. & John Barnes upright, sliding head, back geared, power feeds.
- 22" W. F. & John Barnes upright, sliding head, back geared, power feed.
- 20" Barnes all geared gang drill, with pumps.
- No. 25 Foote-Burt heavy duty vertical, gear box drive.
- 2-spindle Allen high speed ball bearing sensitive.
- Avey high speed single spindle ball bearing sensitive.

MISCELLANEOUS.

- Air compressor, 12"x10" Ingersoll-Rand class E R-1, belted drive.
- Air compressor, 8"x8" Chicago Pneumatic Tool Co., belted drive.
- Bolt cutter, 1" Acme, single head.
- Bolt cutter, 1" Acme, two spindle.
- Boring mill, vertical, 24" Bullard. New Era type, with turret and side head.
- Boring mill, vertical, 30" Colburn, with turret head.
- Boring mill, horizontal, No. 21 Lucas, gear box drive, with 24" bar.
- Brake, hand power. 12" Dries & Krump.
- Grinder, No. 60 Heald cylinder, complete equipment.
- Grinder, No. 70 Heald internal.
- Grinder, No. 3 Oakley universal tool and cutter, with power feed.
- Grinder, 6"x18" Landis plain, self-contained.
- Pipe machine, power, 3" Bignal & Keeler, single pulley, gear box drive.
- Planer, 36"x36"x14" American Tool Works, belt drive, two heads.
- Press, power, No. 5A Toledo, geared, open back inclinable.
- Press, power forcing, 15-ton Lucas, high power.
- Punch & shear, dbl. end, No. 17 Williams-White, cap. 1" x 1", with 25" throat.
- Shaper, 16" Smith & Mills, crank, practically new.

SECOND-HAND MACHINERY

Eastern Machinery Co.—Continued.

MISCELLANEOUS—CONTINUED.

Shaper, 21" Averbeck, geared crank, practically new.
 Shaper, 24" Gould & Eberhardt, back geared crank, high duty.
 Shaper, 24" American Tool Works high duty, bk. grd. crank, practically new.
 Shear, power squaring, 42" Niagara, cap. 18 gauge and lighter.
 Turret lathe, No. 4 Milholland universal, geared head.
 Turret lathes, No. 3-A W. & S. univ. hollow hex., gld. hd., chucking equip.
 Turret screw mch., No. 6 Warner & Swasey, with power feed to cross slide.
 Welder, butt, National, capacity up to $\frac{1}{2}$ " diameter.

And many others. Send for our complete list of bargains.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

No. 3 Ingersoll vertical.
 No. 3-H LeBlond universal.
 No. 2 LeBlond plain, (2).

No. 3 Kempsmith plain.
 Gooley & Edlund production miller.

SHAPERS.

18" Hollingworth b. g. crank.

16" Steptoe b. g. crank.

17" Smith & Mills b. g. crank.

14" Springfield crank.

32"x10' LeBlond, qk. change gear.

16"x 8' Flather, quick change gear.

26"x10' Niles, quick change gear.

16"x 6' Monarch, q. c. g., taper att.

24"x12' South Bend, taper att.

16"x 6' Pratt & Whitney, taper, re-

lieving, draw-in collet attach's.

20"x10' American, q.c.g., crank shaft.

14"x 6' Hendey, q. c. g., taper att.

20"x 8' Boye & Knmes, qk. ch. gr.

13"x11' Sebastian, plain change gr.

20"x 8' Springfield.

12"x 5' Vernon, q. c. g., new.

16"x 8' Pratt & Whitney, q. c. g.,

taper, relieving attachment.

BORING MILLS,

36" Bullard rapid production.

16"x 8' Flather, quick change gear.

36" Fosdick radial, gear box.

16"x 6' Monarch, q. c. g., taper att.

36" Silver radial, gear box.

16"x 6' Pratt & Whitney, taper, re-

lieving, draw-in collet attach's.

14"x 6' Hendey, q. c. g., taper att.

48" Bickford radial.

13"x11' Sebastian, plain change gr.

1" Landis, double head.

12"x 5' Vernon, q. c. g., new.

1 $\frac{1}{2}$ " Geometric, single head.

20" to 24" Spinning lathes.

LATHES.

32"x10' LeBlond, qk. change gear.

16"x 8' Flather, quick change gear.

26"x10' Niles, quick change gear.

16"x 6' Monarch, q. c. g., taper att.

24"x12' South Bend, taper att.

16"x 6' Pratt & Whitney, taper, re-

lieving, draw-in collet attach's.

14"x 6' Hendey, q. c. g., taper att.

20"x10' American, q.c.g., crank shaft.

13"x11' Sebastian, plain change gr.

20"x 8' Boye & Knmes, qk. ch. gr.

12"x 5' Vernon, q. c. g., new.

20"x 8' Springfield.

20" to 24" Spinning lathes.

BOLT CUTTERS.

1" Landis, double head.

1 $\frac{1}{2}$ " Geometric, single head.

1 $\frac{1}{2}$ " Geometric, single head.

2" Murchey, double head.

PRESSES.

No. 1 Bliss 3 $\frac{1}{2}$ " & 7" toggle.

No. 6 Bliss Stiles, solid back.

No. 7A Niagara b. g. inclinable.

No. 31 Toledo, solid back.

No. 5 $\frac{1}{2}$ Walsh inclinable.

No. 32 Toledo, solid back.

No. 3 Rockford inclinable.

No. 3 Blake & Johnson arch presses.

No. 5 Walsh inclinable.

Variety smaller size presses.

GRINDERS.

No. 2 Brown & Sharpe universal.

No. 3 Wilmarth & M., magnetic cks.

No. 1 Wilmarth & Morman univ.

Nos. 2 & 3 La Salle plain.

10" Norton universal.

Fitchburg, Landis, Greenfield, etc.

No. 23 Brown & Sharpe cylinder.

Besly, Gardner 18", 26", 40" disc.

No. 11 Brown & Sharpe plain.

SCREW MACHINES AND TURRET LATHES.

Jones & Lamson, dbl. spindle, (3).

Nos. 1, 2, 3 & 5 Bardons & Oliver.

Greenlee, 3 $\frac{1}{2}$ " capacity.

1" to 14" Acme and Warner & S.

Nos. 0, 1, 2, 3, 4 & 6 Foster.

No. 6 Foster power, long. & cross fd.

MISCELLANEOUS.

Chucks, 300 new and used, all sizes.

Rolls, 10"x4"; 7"x36 steel corrugat'g.

Circle cutters and shears.

Shear, No. 2 Niagara squ., 3 $\frac{1}{16}$ " cap.

Drill presses, large stock new.

Spot welders, Toledo and Thomps'n.

Hammer, 60 lb. Bradley.

Time clocks, Periodograph, Strom-

Keyseater, No. 2 Mitts & Merrill.

berg.

Keyseaters, riveters, tapping machines, tapping chucks, broaches, beaders, vises, time clocks, cutters, reamers, etc., etc., at money-saving prices.

SECOND-HAND MACHINERY

FOR SALE BY

Eastern Machinery Co., - **408 E. Pearl St., Cincinnati, Ohio**
CYLINDER GRINDER.

No. 55 Heald cylinder grinder, equipped with 18" spindle; full factory equipment; new, at a sacrifice price.

FOR SALE BY

Clinton Machinery Co., **128 South Clinton Street, Chicago, Ill.**
LATHES.

17" x 8' Sidney, q. c. g., taper attach.
14" x 6' Hendey, q. c. g., taper attach.
14" x 7' Hendey, q. c. g., taper attach.

SHAPERS.

24" Cincinnati, b. g. crank.
17" Smith & Mills, b. g. crank.
16" Gould & Ketherhardt, b. g. crank.

PUNCH PRESSES AND SQUARE SHEARS.

No. 4 Rockford, inclinable.
No. 316 Bliss power square shear,
66" blade.

DRILL PRESSES.

20" Mechanics, b. g., p. f.
21" Mechanics, b. g., p. f.
22" Superior, b. g., p. f., (2).
24" Prentice, b. g., p. f.

SCREW MACHINES.

No. 4 W. & S., p. f. to tur., & cut-off.

MISCELLANEOUS.

Bolt cutt'rs, sgl. hd., 4" Geometric (2).
Grinder, 18" Besly, disc.

A'bor Presses, Punches, Chain Hoists, Electric Motors.

FOR SALE BY

The O'Brien Machinery Co., **113 N. Third St., Philadelphia, Pa.**

Bending rolls, 12' Kling, motor dr., 15" & 11" dia. rolls, cap. 4" plate.
Drill, 32" Aurora, motor driven, tapping attachment.

Grinder, 6" x 32" Norton plain.
Hammer, 100 lb. Massillon, steam.
Lathe, 22" x 11" Lehmann, geared head, taper attachment.

Lathe, 24" x 12" Schumacher & Boye.
Lathe, 26" x 21" Whitcomb-B., mtr. dr.
Miller, No. 2 Cincinnati plain, geared head, single pulley drive.

Miller, No. 3-H LeBlond plain.
Miller, No. 3-B Hendey plain.
Miller, No. 4 LeBlond plain, heavy duty.

Miller, No. 2 Rockford universal.
Miller, No. 3 Kempsmith universal.
Milling and drilling machine, No. 2 Knight vertical.

Pipe machines, 2", 4", 6", 8" & 12"
Oster, Cox, Eaton-Cole & Burnham and Jarecki m'k's, belt or motor driven, complete stock.
Planer, 36" x 36" x 12" Woodward & Powell, motor driven, 3 heads.

Presses, Nos. 18, 19 and 20 Bliss.
Planer, 54" x 54" x 14" Pond Machine Tool Co., two heads.

Press, No. 34 Toledo gr. str. side.

Punch, No. 2 H. & J., sgl. end, 30" thrt. motor dr., cap. 1 $\frac{1}{2}$ " thru 1".

Punch, Rock River, single end, 42" thrt., motor dr., cap. 1 $\frac{1}{2}$ " thru 1".

Punch and coping machine, 36" cap., Long & A. type B, motor driven.

Punch and shear, No. 3 Hilles & J., dbl. end, motor dr.; punch end, 42" thrt., cap. 1 $\frac{1}{2}$ " thru 1"; shearing end, 36" thrt., cap. 1" plate, 2 $\frac{1}{2}$ " round, 7" x 1 $\frac{1}{2}$ " flat, 5" x 5" x 3" angle.

Radial drill, 36" Gang.

Radial drill, 5' Mueller.

Radial drill, 5' Dreser, motor driven.

Shapers, 12", 14", 16", 21" and 24" stroke, assorted makes.

Trimming press, No. 75 $\frac{1}{2}$ Bliss, straight side, with side shear attachment.

Turret lathe, No. 6 $\frac{1}{2}$ Bardons & Oliver, wire feed, cabinet base.

SECOND-HAND MACHINERY

FOR SALE BY

Russell Machine Co., - 28th St. & A. V. R. R., Pittsburgh, Pa.

LATHES.

50" x 49' 6" Johnson, triple geared.
 50" x 25' Putnam, geared head.
 30" x 13' New Haven.
 28" x 14' Putnam, h. s.
 28" x 10' Whitcomb-Blaisdell.
 26" x 12' Pittsburgh, dbl. b. g.
 26" x 20' 6" Putnam, b. g., c. r.
 26" x 10' 6" Walcott, q. c. g.
 24" x 16' 6" Johnson lathe.
 24" x 14' Rahn-Mayer-Carpenter.
 19" x 10' LeBlond, motor drive.
 19" x 6' Bullard, c. r., b. g.
 18" x 8' Mueller, q. c. g.

18" x 8' Sidney, q. c. g., d. b. g.
 16" x 10' Bradford, t. a.
 16" x 6' Hendey, tie bar.
 16" x 6' Blaisdell, h. s.
 16" x 6' Cleveland, q. c. g., new.
 16" x 6' South Bend, h. s., t. a.
 15" x 8' Schellenbach, d. b. g., h. s.
 16" x 5' Fox turret with chasing bar.
 3" x 36" & 24" x 24" J. & L. flat turret.
 24" x 6' Gisholt tur., q. h. s., m.d.
 1" x 7" Acme screw machine.
 10" x 4' Blount speed lathe.
 12" x 48" speed lathe.

PLANERS AND SHAPERS.

24" x 24" x 8' Chandler planer.
 32" x 22" x 8' New Haven, 1 head.
 48" x 48" x 16' Cleveland open side
 planer, 1 side & 2 rail heads.
 48" x 48" x 22' Pond planer, 4 heads.

120" x 120" x 25' Sellers planer, 4 heads.
 16" & 20" G. & E., b. g. cr.
 24" Kelly b. g. cr. shaper.
 24" Queen City, b. g. cr. shaper, m.d.
 32" Smith-Mills b. g. crank.

DRILLS AND BORING MILLS.

12" Washburn sensitive.
 20" Champion, new, pl. w. & l.
 22" Hamilton, b. g.
 24" Aurora, b. g.
 36" Prentice, sliding head.
 40" New Haven, b. g. drill.
 4" Dresses, 4" Bickford radial.
 6" & 8" Pond radial drills.
 2" Canedy-Otto post radial.

1" Champion post drill.
 30" W. & S. boring mill.
 36" Bridgeport boring mill.
 42" & 50" Bullard bor. m., 2 heads.
 42" Bullard New Era boring mill.
 36", 51", 90", 10' Niles bor. mills.
 84" Pond boring mill.
 Beaman & Smith post type hor. bor.
 ing mill, 34" bar, m. d.

PRESSES AND ROLLS.

Fischer s. e. punch & shear, 1" x 1".
 King Bridge Co. s. e. punch, 20" thr.
 50" throat Reade sgl. end punch and
 shear; massive construction.
 Covington No. 2 s. e. punch & s. 1x1".
 Cleveland s. e. punch & shear, 1" x 1".
 L & A punch & shs. Nos. 6, 7.
 Mahoning punch & shear, 32" thr.
 Plunger type punch & shear, 9" thr.
 six 1" holes thru 1" plate and 6x1"
 at one operation.
 Lewis alligator shear, cap. 11".
 Carlin alligator shear, 11" capacity.
 Carlin alligator shear, 24", m. d.
 Canton alligator shear, 3", m. d.

Garrison plate shear, cap. 8" x 81", m.d.
 Waterbury-Farrel rotary sh., 14" thr.
 Hillies & Jones gate shear, capacity
 84x1", motor drive.
 Pusey-Jones guillotine shear, 3" cap.
 Hillies & Jones guillotine shear, 24".
 Niagara pr. sq. shears., 36".
 Toledo No. 52 geared arch press.
 No. 56 dbl. housing knuckle press.
 Stiles No. 3 inclinable press.
 Baird No. 1 foot power presses.
 Baird Nos. 3 & 4 open back presses.
 Straight-side punch press, 1" str.
 Caldwell 200 ton hydraulic wheel
 press, 38" between bars, m. d.

MISCELLANEOUS.

Air compressors: Chicago 19x12x16;
 Chicago 9" x 11".
 Blowers, Buffalo No. 8 vol.; Stur-
 tevant No. 8.
 Bulldozers, W. W. Nos. 2 & 4.
 Cold saw, Wagner, size 18 type 3.
 Cranes, portable 2 & 2½ ton.
 Engine, gas, 15 h. p. Fenner.
 Forge, No. 41 Champion new.
 Forge, Buffalo 32 H., with motor.
 Gear cutters, No. 12 B. & S.
 Gear hobber, 160" x 32", for high
 speed gears; will cut spur, worm
 and spiral gears; m. d.
 Grinder, Ott 6" x 6" internal.
 Grinder, Ott 5" x 18" plain.
 Grinder, Landis No. 3 universal.
 Grinder, Plymouth No. 17.

Grinders, Norton & W.-P. 24" x 4".
 Hammers, 25, 60 and 80 lb. Bradley
 helve; 75 & 100 lb. upright strap.
 Hammers: 1500 lb. Bement st. dr.;
 800, 2000 lb. B-M st. forging.
 Millers: Cincinnati No. 2 high duty
 universal; Cin'ti No. 3-S univ.;
 Hendey-Norton No. 3 universal;
 B. & S. No. 2-B, Cincinnati No. 3,
 and Garvin No. 12 plain; Briggs
 high duty production; Cincinnati
 No. 2 vertical.
 Motors, Fairbanks-Morse, 20 h. p.,
 3 phase, 60 cycle.
 Pipe machines, Merrill 4".
 Pipe mch., Eaton-Cole-B., 4" & 8".
 Slotter, Niles 15".
 Upsetters, Acme, 1" steel bed.

SECOND-HAND MACHINERY

FOR SALE BY

Clark Machinery Co., 1235-45 St. Clair Ave., Cleveland, O.

Compressor, 6" x 6" Chgo. Pneumatic Drill, Avey 2-spindle. Lathes, 16" x 6" Lodge & Shipley. Lathe, 17" x 8" Sidney, q. c., d. b. g. Lathe, 14" x 6" Hendey, q. c., tap. att. Miller, No. 2 B. & S. universal.

Miller, No. 20 Ohio universal. Miller, No. 2 Becker vert. cal. Planer, 42" x 42" x 8' Gray. Screw machine, No. 6 Foster. Screw machine, No. 2 W. & S. Screw machine, No. 4 W. & S.

FOR SALE BY

Lynd-Farquhar Co., 423 Atlantic Ave., Boston, Mass.

Not just "used tools", but particularly good values. Automatics, first-class No. 56 National Acme; have seen very little service, (2). Bolt heading, upsetting and forging machine, 14" Acme Machinery Co.'s all steel, with side shear; gilt-edge condition. Grinding machines, plain cylindrical, 3" x 18" Norton No. 4, self-contained, rebuilt, and complete equipment, at a gift price, (2). Grinders, rotary surface, 8" Heald No. 20, practically new, with magnetic chucks and special automatic hopper feed fixtures for grinding rings, an exceptional value, (2). Grinder, plain cylindrical, Landis 10" x 24" s. c., latest pattern, very little service, complete equipment. Grinder, a splendid No. 6 Besly 18" ring wheel grinder, 90 per cent new, arranged for wet grinding; special fixtures for holding piston rings; a lot of equipment. Miller, No. 2 Becker vertical, special ball bearing spindle construction for 12,000 r. p. m., practically new. Miller, latest type No. 13 Garvin plain, cone drive, not back geared, very little used. Miller, No. 2-A Garvin universal, complete, brand new. Planer, 36" x 36" x 12' Fitchburg, heavy pattern, two heads on cross rail, two side heads; a heavy, powerful planer.

FOR SALE BY

W. P. Little Co., West 9th & Front Sts., Cleveland, Ohio

RADIAL DRILLS.

3' Prentice, plain.

4' W. E. Gang, plain.

MULTIPLE DRILLING MACHINES.

20" 4-spindle Rockford, with automatic approach and return feed, (2).

LATHES.

14" x 6' LeBlond, q. c. g., c. r.

16" x 6' Bradford, q. c. g., & t. a.

16" x 6' LeBlond, q. c. g., c. r.

18" x 8' Porter, d. b. g.

No. 9 Kempsmith universal.

No. 1 Kempsmith pl., with div. hd.

18" Cincinnati b. g.

No. 2 Cincinnati pl., with div. hd.

No. 15 Brainard.

U. S. hand miller.

PUNCH PRESSES.

No. 2 Bliss Stiles pattern.

No. 24 Cleveland horning.

No. 14 Williams & White.

Z. & H. double acting cam drawing.

No. 3 Long & Allstater, dbl. end.

30" geared, arch.

GRINDERS.

No. 2 Bliss internal.

No. 3 Modern universal.

No. 75 Heald internal.

No. 6 Rivett internal.

RADIAL TAPPING MACHINE.

4" Rickert & Shafer radial tapping machine, motor driven.

MISCELLANEOUS.

Bolt cutter, 2" Foote-Burt.

Keyseater, No. 6 Mitts & Merrill.

Bolt cutter, 24" National.

Slotter, 8", rotary table.

Boring machine, 30" Colburn vert.

Spinning lathe, 22" Prybil.

Boring machine, No. 3 Marvel cylinder.

Spinning lathe, 28" Prybil.

Hammer, 50 lb. Bradley upright.

Spline miller, 4" Pratt & Whitney.

Hammer, 250 lb. Morgan steam.

SECOND-HAND MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

Air compressor, 4 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " Curtis.
 Bolt cutters, Acme 6". Landis 2 $\frac{1}{2}$ ".
 Bolt cutter, 2" Acme, sgl. 2 $\frac{1}{2}$ " head.
 Bolt cutter, 2" Acme dbl., Landis hd.
 Bolt cutter 1 $\frac{1}{2}$ " Acme, triple head.
 Boring mill, No. 5 B. & S. post.
 Boring mill, Rockford horiz., 2 $\frac{1}{2}$ " bar.
 Boring mill, No. 31 Lucas horiz., 3" bar.
 Boring mill, Bettshoriz., 3 & 4" bars.
 Boring mill, 10' Niles, m. d.
 Boring mill, vertical, 72" Betts.
 Boring mill, 54" Bullard "Maximill," m. d., (2). (95%).
 Boring mill, 52 & 42" King, sgl. vul.
 Boring mill, 40" sgl. hd., light \$175.
 Brake, 8' Chicago, for 18 gauge.
 Brake, 8' double truss, hand.
 Brake or press, 10' Robinson, toggle.
 Bulldozers, Nos. 6, 8 & 9 W.W.
 Compressor, 117 cu. ft. Chicago,
 belt or m. d. (A-1).
 Compressor, 14" x 10" x 12". Ingersoll.
 Drills, radial, 3' & 3 $\frac{1}{2}$ " Bickford, t. a.
 Drills, radial, 3' Prentice; 3' Fosdick.
 Drill, radial, 2 $\frac{1}{2}$ " Taylor-Fenn, sens.
 Drills, 36" Hoefer; 24" Aurora, s. h.
 Drill, 13" Washburn sensitive.
 Drills, 21 and 20" Barnes, hand and
 lever feed.
 Drill, 28" Barnes, sliding hd., b. g.
 Drill, 20" Barnes, all grd. (enclosed)
 Drill, 20" Rockford, sl. hd., q. c. g.
 Drill, 22" American, hand & lever fd.
 Drills, No. 2 Colburn, mfg. type. (4).
 Drill, Allen, 20" sensitive, 4-spndl.
 Drill, heavy duty, 24" Foote-Burt.
 Exhausters, No. 8 Buffalo.
 Exhausters, No. 28 Sturtevant.
 Forging machines, 1 $\frac{1}{2}$, 2, 2 $\frac{1}{2}$, 3 & 4".
 Gear h.c.bber, No. 12 Barber Colman.
 Grinder, No. 60 Heald internal.
 Grinder, Gardner, 16" disc & ring w.
 Hack saw, No. 7-K Atkins, power,
 motor drive.
 Hack saws, 4", 6" & 8", belted or m.d.
 Hammers, 80 & 100 lb. Bradley helve.
 Hammer, 600 lb. Bement, sgl. leg st.
 Hammers, steam drop, 1500, 3000 lb.
 Hot saw & burring machine, Acme.
 Keyseater, No. 1 Baker, for motor.
 Lathe, gap, 36/30" x 12/20" Harrington.
 Lathe, 42" x 32" Am., grd. hd., m. d.
 Lathe, 36" x 16" American, g. h., t. a.,
 a. c. motor. (95%)
 Lathe, 30" x 14" L. & A., q. c. g., t. a.
 Lathes, 27" x 10" Lodge & S., q. c. g.
 Lathes, 25" x 12" LeBlond, q. c. g., t. a.
 Lathes, 24" x 10" Reed, turret on bed.
 Lathes, 20" x 10" Schellenbach, g.d.hd.

We Buy, Sell and Exchange.

127 Water St., Pittsburgh, Pa.

Lathe, 18" x 10' Porter, s. b. g., c. r.
 Lathe, 18" x 8 $\frac{1}{2}$ ' Hendey, pl. change.
 Lathes, 18" x 10' L. & S. & LeBlond.
 Lathe, 18" x 10' Monarch, q. c. g.
 Lathe, 18" x 8' Am., q. c. g., tap. att.
 Lathe, 16" x 8' Bradford, pl. change.
 Lathe, 14" x 6' Monarch, q. c. g., t. a.
 Lathe, speed, 11" x 4' Prentiss, t-rest.
 Miller, bench, No. 1 Burke, hand.
 Miller, vertical, No. 2 Brown & S.
 Miller, No. 3 Fox, hand, 24" x 6" x 14 $\frac{1}{2}$ ".
 Miller, No. 6 C. C. pl., 18" x 6" x 15".
 Miller, No. 14 Rockford, plain.
 Miller, No. 3 Cincinnati, plain.
 Miller, No. 3H LeBlond, pl. ind. hd.
 Miller, No. 2 Kempsmith universal.
 Nut tapper, 2" Acme 6-sp semi-auto.
 Pipe machine, 6" Williams, mtr. dr.
 Pipe mchns., 4" Oster, belt drive.
 Pipe machine, 8" Saunders.
 Planer, 60x60" x 12" Pond, 3 hds., m.d.
 Planer, 48" x 48" x 16" D. & H. O.s.
 Planer, 42" x 42" x 12" Betts, I head.
 Planer, 42" x 36" x 20" Cin'ti, 4 heads.
 Planer, 30" x 30" x 8' Niles, hy., 1 hd.
 Planer, 28" x 28" x 6' Gale, 1 head.
 Planer, 26" x 26" x 8' Niles, 1 head.
 Planer, 24" x 24" x 5' New H., 1 hd.
 Press, No. 27 Bliss, horning, b. g.
 Presses, No. 7 $\frac{1}{2}$ Bliss, tie rod 6" st.,
 s. b. g., m. d., (2).
 Presses, No. 61 Bliss, plain.
 Press, No. 56 Toledo, pl. trim., 3" str.
 Press, No. 11 Perkins, pl. trim., 4" str.
 Punch, Cleveland 7" tht. cap, 8" x 8".
 Punch, 15" thts., dbl., 1x1", arch. jaws
 Punch & shear, H. & J., 72" tht.,
 cap, 18" x 18", motor drive.
 Riveter, 8" Shuster, style A.
 Rivet hammers, 3-A 4-A, 5-A, hi. sp.
 Rolls, bending, 16" H. & J., cap, 4",
 extension for 24", with motors
 220 v., d. c. (near new).
 Saw, No. 11 $\frac{1}{2}$ Higley, cap, 4" blade.
 Saw, Gorton, size 2B internal tooth.
 Shaper, 21" American, b. g., crank.
 Shaper, 20" Cin'ti, b. g., crank.
 Shaper, crank, 17" Smith & M., s. g.
 Shaper, 28" Hendey, pillar type.
 Shaper, 18" Barker, crank.
 Shear, 60" x 16 ga. 18" gap, power.
 Shears, Quickwork No. 6, m. d.
 Shear, rotary, 4" Lennox, 8" gap.
 Shear, plate, 9" x 9", cap, 15", m. d.
 Shears, plate, 10" & 7" x 1" L. & A.
 Shear, squaring, 42" Niagara, ft. prw.
 Slotters, 16" & 18" Bement-Miles.
 Slotter, 15"-18" Dill, a. c. mtr.
 Turret lathe, No. 1 Bardous & Oliver.

HOW—can our advertisers know that your inquiry comes from Hitchcock's?
List unless you tell them? When writing them, won't you kindly
say that you saw it in Hitchcock's? That will be sufficient.

SECOND-HAND MACHINERY

FOR SALE BY

The Patterson Tool & Supply Co.,

Drill, 3" bench, new, mtr. dr., \$42.50.
 Drill, 2-spindle Demco, new... \$250.
 Lathe, bench, 3 Cataract, used, 175.
 Lathe, 11"-16" x 40" Artisan, new 170.
 Lathe, stud, 16" x 8' Reed, used, 75.

Dayton, Ohio

Lathe, 40" x 20' Fifield, used ... \$1500.
 Saw, circular, 34" Swind, new.. 150.
 Saw table, Amer. Handy new.. 65.
 Shaper, 24" P. & J., m. d., used 800.
 Shaper, 24" Columbia, b.g., new 1250.

FOR SALE BY

Brown Machinery Co.,

Boring mill, No. 10 Beaman-S. hor.
 Boring mill, 60" Sellers, 2 heads.
 Boring mill, 42" Bullard.
 Brake, D. & K. 8", 16 ga. cap.
 Die sinker, No. 3 Jackson.
 Drill, 24" Aurora, sl. hd., b. g., p. f.
 Drill, 24" Cincinnati, sl. hd., b. g., p. f.
 Drill, 26-spindle Baush, No. 3.
 Drill, No. 1 Barnes hor. radial.
 Drills, rad., 3" American & Mueller.
 Gear hobber, No. 1 Farwell.
 Gear shaper, Fellows 36".
 Grinders, No. 6 & No. 14 Besly.
 Grinders, 5x18 Ott; 10x36" Norton.
 Grinder, No. 12 Brown & Sharpe.
 Grinder, No. 1 B. & S. universal.
 Hammer, Dupont, size D.
 Lathes, 14", 16", 20", 26" Walcott,
 d. b. g., q. c. g.
 Lathe, 18" x 10' LeBlond.
 Lathe, 17" x 6' Cincinnati, semi q. c.
 Lathe, 20" x 8' Reed.
 Lathe, 26" x 14' Hamilton.

Many other bargains. Write us about your requirements.

2323 N. 9th St., St. Louis, Mo.

Miller, No. 3 B. & S. universal.
 Miller, 1-B Fox horizontal.
 Miller, No. 4 Hendey, b. g.
 Miller, No. 3 Becker.
 Miller, No. 5B Becker-B.
 Miller, 8" P. & W. automatic.
 Planer, 30" x 30" x 8" Pease.
 Planer, 54" x 54" x 12" Pond.
 Press, embossing, Roover.
 Presses, L. & J. Nos. 1, 2, 3.
 Press, toggle, Robinson 10'.
 Profilers, two-spindle, Putnam,
 Reed-Prentice.
 Punch, Ryerson-Kling rapid action,
 18" throat, $\frac{1}{2}$ in $\frac{1}{2}$.
 Roll, plate straightening, No. 0
 Hilles & Jones 4' 8" x $\frac{1}{2}$ ".
 Shear, 8" Niagara, foot power.
 Shears, 134 Marshalltown rotary, 10".
 Shear, No. 13 Pettin. rotary, 14 ga.
 Stake riveter & punch, No. 3 Hilles
 & Jones, 5' throat.

FOR SALE BY

McCoy-Brandt Machinery Co.,

Air compressors, belted, 242 cu. ft.
 Air compressors, steam, 909, 2052
 and 2200 cu. ft.
 Bolt cutter, 24" Landis, single head.
 Boring mill, 10' Niles, 2 heads.
 Bulldozers, Nos. 2, 4, 6 and 30.
 Drill, 20" Buffalo, b. g.
 Drills, radial, 5" Prentice, m. d.
 Flanging mch., McCabe, cap, 4" plate.
 Forging machines, 2", 3", 4" and 5".
 Grinders, 12" x 48" Cincinnati plain.
 Grinder, 10" x 72" Norton pl., m. d.
 Grinder, Gisholt universal tool.
 Grinder, Diamond 36", wet tool.
 Grinder, 10x32 Ott universal.
 Grinder, No. 4 Gardner double disc.
 Lathes, 14" x 6' Hendey.grd.hd.,m.d.
 Lathe, 17" x 12' LeBlond, g. h., t. a.
 Lathe, 19" x 14" LeBlond, g. h., turn.
 Lathe, 20" x 10' Monarch, q. c. g.
 Lathe, 24" x 26' American, m. d.
 Lathes, 26" x 12' Putnam, cone.
 Lathe, 26" x 12' Wickes, q. c. g., new.
 Lathe, 36" x 20' Sidney, q. c. g., cone.
 Lathe, 36" x 28' Putnam, m. d.

210-14 Penn Ave., Pittsburgh, Pa.

Lathe, 50" x 25' Bement, triple grd.
 Millers, horiz. Nos. 3 & 5 Cincinnati.
 Miller, vertical, No. 0 Bickett.
 Millers, vertical, No. 3 Brown &
 Sharpe, motor drive.
 Millers, Nos. 2, 5C & 6 Becker vert.
 Motors, 5 & 7½ h. p., a. c.
 Nut tappers, 10 spindle, rotary, cap.
 14" nuts.
 Pipe machines, 12", 10", 8", 4" & 2".
 Planer, 30" x 30" x 8" Flather, 1 head.
 Planer, 120" x 25' Sellers, 4 hds., m. d.
 Press, No. 68 Bliss, double acting.
 Press, No. 51 Bliss, s. s., 14" stroke.
 Punch, dbl. end, 20" throats, 14" x 1".
 Rolls, bending, 16" x 8" Wickes, m. d.
 Rolls, bending, 12" x 5" / 16" H. & J.
 Shaper, 20" Steptoe, b. g. crank.
 Shear, angle 8" x 6" L. & A. dbl., m. d.
 Shear, 60" x 1" plate, L. & A., m. d.
 Shears, guil., cap, 24", 2" & 1".
 Shear, rotary, cap, 4", with circ. att.
 Shear, rotary bevel, cap, 4", m. d.
 Turret lathe, 18" Libby, like new.

SECOND-HAND MACHINERY

FOR SALE BY

Carbon Steel Company, Ft. 32nd St. & A. V. R. R., Pittsburgh, Pa.

The complete liquidation of the Carbon Steel Company makes available the following tools:

Drill, Pond Machine Co. 6' radial, belt drive.....	\$ 500.
Grinders, Espen Lucas 1½x13" spindle.....	each, 50
Lathes, Israel H. Johnson 30"x18", bk. grd., 5-step cone drive, (2), ea.,	350
Lathe, 36"x27" roll lathe, 60" face plate.....	500.
Shears, Mackintosh steam dr. 30½" thr., 4" str., 24" shear blade, (2), ea.,	300.
Shear, Mackintosh s. grd., 22" throat, 16" blade, 2" stroke.....	100.

FOR SALE BY

**Niles-Bement-Pond Company, - 111 Broadway, New York
Located at our various factories**

LATHES

12"x 5' Reed, taper.	36"x12' Pond, t. g., 220 v., d. c. mtr.
14"x 8' P. & W., taper.	36"x17' Pond, taper, 220v., d. c. mtr.
24"x24' Niles.	42"x20' Niles, t. g.
26"x10' Pond, 220 volt, d. c. motor.	48"x28' Niles, t. g.
28"x12' Pond.	50"x17' Miles, old style.

TURRET LATHES

2", 2½" and 3" P. & W.	28" & 34" Gisholts.
2½x24" W. & S. hollow hex.	32" Conradson American turret.
21" and 28" Pond rigid turrets.	

PLANERS

20"x20"x 6' Bement.	42"x42"x26' Pond, reversing motor.
24"x24"x 6' Powell.	48"x48"x16' Pond, reversing motor.
24"x24"x 6', 8' and 10' Whitcomb-B.	48"x48"x20' Bement, belt.
26"x26"x 6' Gray.	54"x36"x10' Bement, belt.
30"x30"x 6' & 10' Pond, 2 heads.	50"x36"x22' Pond, reversing motor.
30"x30"x 6' to 12' Pond, reversing motors.	54"x54"x22' Pond, rev. motor.
36"x36"x10' to 16' Niles.	60"x60"x20' & 24' Niles, belt.
36"x36"x12' to 16' Pond, reversing motors.	72"x72"x12' Bement, belt.
42"x42"x14' Bement.	72"x60"x14' Bement, reversing mtr.
	10"x10"x36' Betts, 220 volt, d. c. motor through belts.

MILLERS AND GEAR CUTTERS

No. 3-B plain, 220 v., d. c. motor, Brown & Sharpe.	6x4½ to 132" P. & W. old style thread millers.
No. 4 plain, cone pulley, B. & S.	15" Gleason bevel gear generator.
No. 5 plain, cone pulley, B. & S.	No. 5 vertical, cone pulley, B. & S.
No. 4-48" Newark, 220 v., d. c. mtr.	36" to 60" B. & S. spur gear cutters.

DRILLING MACHINES

32" Aurora, tapping attachment.	6' Pond, 220 volt, d. c. motor.
40" Aurora, tapping attachment.	6' Niles full universal, speed box.
36" Morris speed box radial.	12-spindle No. 13 P. & W. multiple.
5" Niles full universal, speed box.	

BORING MACHINES

36-44" Niles side hd. mill, 220 v., d. c.	10' Niles mill, 220 v., d. c.
51" Niles mill, with turret head.	4½ and 6½" Niles floor borers.
60" Bement b. & t. mill.	2½ to 4½" horiz. bor. and drill. mches.

MISCELLANEOUS

Air compressors, 324' and 335', steam drive.	Heater, 600 h.p. Cochrane, fd. water.
Crane, 3-ton, 19' span, Niles 3-motor, 220 volt, d. c.	Grinder, Mummert-Dixon portable radial 220 volt d. c. motor.
Engines, 125, 150 and 200 h. p. Philadelphia Corliss.	Grinder, No. 6 Bryant hole gr.
Generator set, 100 k. w., 22 volt, d. c., direct connected to engine.	Grinder, P. & W. thread miller cutter.
	Pumps, 200 to 1000 gal, steam drive.
	Sifter, 18" Putnam, 220 volt, d. c. motor.

SECOND-HAND MACHINERY

FOR SALE BY

McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.

BOILER EQUIPMENT.

Long & A. No. 0 angle shear, 4x4x4.
Felber combination punch & slitting
shear, 1" in 1".
Scully hvy. punch, 1" in 1", thrt. 20".

MISCELLANEOUS.

Brakes, 6' 8', & 10' hand.
Grinders, 25 Heald type ring grinders; Person-Arter automatic ring
grinder; 3 McQuary-Norris step
cutting mch's; Modern, B. & S.,
Norton and Walker grinders, Blan-
chard motor drive surface grinder.
Lathes, 40"-9" to 24" South Bend;
26"x14' Hamilton, q. c. g.
Milling mch's, Milwaukee No. 1A,
Hendey No. 2 universal, American
No. 1½ univ.; Becker model SD
vert., rotary table, wt. 16,000 lbs.;
20 plain millers; Cinti. No. 1½ univ.

H. & J. No. 0 punch, 1" in 1", 14" thrt.
Badger punch, 36" throat, 1" in 1".
Miscellaneous equipment, screw
punches, taps, flues, hoists, etc.

Planers, 36"x38"x23' Sellers, 2 hds.;
42"x42"x16' Pond, 2 heads.
Presses, No. 2 Rockford and Consol-
idated, No. 18 Bliss, No. 40 Swaine.
Radial drills, 5' American, 4' Niles.
Screw mch's, B. & S. No. 00, Foster
No. 3 hand, 2 Woods No. 2 tilting
turret.

Shapers, new 12", 14", 16" & 20";
36" Fellows, gear; used 16" & 24";
automatic 24" shaping planer.
Sheet metal tools, Voder and Pexto.
Slitting shear, No. 10 Quickwork.
Welders, butt and spot.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1001-3-5 N. Sixth St.,

St. Louis, Mo.

LATHES.

9"x12" Sundstrand.
15"x 8' Sidney, q. c.
18"x 6' American, q. c.
21"x 8' Sidney, q. c.
26"x16' Niles, plain change.

26"x13' Putnam, q. c., ar. for motor.
20"x15' American, q. c.
33"x20' Draper, triple geared.
36"x18' Prentice Bros., t. a.
20" Pit lathe.

SHAPERS.

16" Flather, 4 speeds.

PLANERS.

36"x26"x10' Flather.
60" open-side Detrick & H., 3 heads.

GRINDERS.

No. 6 St. Louis.
Yankee twist drill.
12"x42" Landis universal.
30" Diamond face grinder.

DRILLING MACHINES.

34" sliding head.
3 arm Mueller speed box drive.
5 arm Prentice radial.

MILLERS.

No. 2 Rockford full universal.
No. 3½ Knight vertical.
Nos. 0 and 3 Burke bench millers.

MISCELLANEOUS.

Boring machine, horizontal, No. 2
Pawling & Harnischfeger.
Boring mill, No. 1 Bissel horiz.
Boring mill, 60" Bullard.
Bulldozer, 75-ton Lourie hydraulic.
Engines, Corliss, 75 to 200 h. p.
Magnetic pulley, 24"x36".
Press, portable, hydraulic.
Punch, No. 14 Williams-White, dbl.
Punch, No. 5 Long & Allst., 5" thrt.
Punch, No. 7 Long & Allst., 4" thrt.

Riveter, 24" Shepard.
Saw, No. 12 Higley.
Saw, No. 21 Higley.
Saw, Lucas revolving, 31" blade.
Screw machine, No. 6 Woods.
Shear, squaring, 50" Excelsior.
Shear, power, circle, Niagara.
Spot welder, Toledo, 20 k. w.
Tapper, No. 2 Garvin.
Tilted turret lathes, Wood, (3).
Turret, 28" Gisholt latest.

SECOND-HAND MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc.,

No. 3 Fox St., Bridgeport, Conn.

MILLING MACHINES.

Select the one you need and write for full particulars.

UNIVERSAL MILLERS.

No. 1 Milwaukee universal.	No. 3 Cincinnati universal.
No. 2 Cincinnati universal.	No. 3-A B. & S. universal.
No. 2 B. & S. universal, (2).	No. 3 G. S. Hendey Norton universal.
No. 3 Becker Brainard universal.	

PLAIN MILLERS.

No. 21 Garvin plain.	No. 3 Cincinnati plain.
No. 13½ Garvin plain.	No. 24 Ohio plain.
No. 1 Brown & Sharpe plain.	No. 34 Ohio plain.
No. 1½ Brown & Sharpe plain.	No. 2-B Milwaukee plain.
No. 12 Brown & Sharpe plain.	No. 4 Brown & Sharpe plain, (2).
No. 3 Brown & Sharpe plain.	No. 4-B Brown & Sharpe hvy. plain.

Every one guaranteed. Write or wire today.

FOR SALE BY

Peninsular Machinery Co., 429-31 E. Jefferson Ave., Detroit, Mich.

LATHES.

9"x14' Porter-Cable, (4).	14"x 6' Rockford, l. c. g.
13"x 5' South Bend, l. c. g.	14"x 8' Monarch, l. c. g., taper.
13"x 5' Champion, l. c. g.	16"x 8' Bradford, l. c. g.
14"x 6' Prentice, l. c. g., (2).	17"x 8' LeBlond, q. c.
14"x 6' Bradford, q. c.	17"x10' LeBlond auto.
14"x 6' Carroll-Jamieson, (9).	21"x11' LeBlond, all geared, (2).
14"x 6' Flather, l. c. g.	21" x 8' LeBlond, q. c.
14"x 6' Reed, l. c. g., (5).	26"x10' LeBlond crankshaft, (2).

DRILLING MACHINES.

6" Sipp bench drill,	No. 3 Avey, h. s.
14" Excelsior.	36" American sens. radial.
14" Avey, h. s., b. b.	No. 3 Baush multiple.
26" Hoefer, st. h. d., (2).	

MILLING MACHINES.

No. 6 Whitney hand.	No. 32 Kempsmith.
United States hand.	No. 1½ Cincinnati plain.
No. 0 Steepe, b. g. and p. f.	No. 2 Brown & Sharpe plain.
No. 0 Farwell q. c.	No. 3 Hendey plain.
Briggs type A, (2).	No. 4 LeBlond, a. g., plain.
No. 12 Brown & Sharpe.	48" Newton 2-spindle.

TURRET SCREW MACHINES.

1" Dreses, p. h. and p. f.	2" Millholland, f. h.
2" Cleveland auto., type B.	2x26 Pratt & Whitney, f. h.
1½" Defiance, f. h.	2½x26 Pratt & Whitney, a. c.

GRINDERS AND POLISHERS.

No. 1 LeBlond plain.	No. 50 Heald cylinder.
No. 1 Brown & Sharpe universal.	No. 210 Heald magnetic.
No. 1 Norton universal.	14x72 Landis plain.
No. 2 Bath universal.	20" Blount wet grinders, (2).
6x32 Norton plain.	No. 4 Webster & Perks polishing.
No. 2 Gardner disc grinder.	Bennett & O'Connell dbl. sp. pol.
No. 24 Gardner vertical.	No. 23-B Valley City disc.
No. 70 Heald internal.	No. 220 Badger automatic.

MISCELLANEOUS.

Band saw, 6" Napier.	Metal cutter, No. 1 Gray.
Cutting-off mch., 4" Hurlbut-Rogers.	Press, No. 40 Perkins, o. b. i.
Filer, No. 2 Cochrane & Bly.	Shear, squaring, No. 552 Niagara.
Gear tester, bevel, Gleason.	Screw slotter, No. 1 National Acme.
Hack saw, 6x6 Peerless, h. s.	Threader, 2-sp. Webster & Perks.
Hammer, drop, No. 5 Williams-W.	Threader, H. & G. 9/16 automatic.
Keyseater, No. 1 Davis.	Tumbling barrels, No. 3-S Globe, (2).
Lapping mchs., Bethel-Player, (2).	

SECOND-HAND MACHINERY

FOR SALE BY

Michigan Malleable Iron Co.,

Detroit, Mich.

VERTICAL BORING MILLS.

Seven 30" Gisholt vertical boring mills in excellent condition.

FOR SALE BY

Bardons & Oliver,

Cleveland, Ohio

LATHES.

13"x 6' Pratt & Whitney, t. a.
14"x 6' Reed.
14"x 6' Flather, t. a., (2).
16"x 6' Bradford.
16"x 7' Reed.
16"x 7' Reed, t. a.

18"x 9' Chard, d. b. g.
18"x 8' Reed.
18"x 8' Flather, t. a.
19"x 8' LeBlond hvy. duty, q.c.g., t.a.
22"x 8' Flather, (2).
32"x 16' Gleason, d. b. g.

MILLING MACHINES.

No. 1 Milwaukee universal.
No. 2 Milwaukee plain.
No. 12 Kempsmith, Lincoln pattern.

Pratt & Whitney, Grant pattern.
6"x 80" Pratt & Whitney thread milling machine, old model.

TURRET LATHES.

No. 1 13/16 capacity Bardons & Oliver.
No. 3 14" " " "
No. 4 14" " " "
No. 4½ 14" " " "
No. 9 22" " " "
No. 10 3" " " "
No. 10½ 3" " " "
4½"x 30" " motor driven

MISCELLANEOUS.

Boring mill, No. 2 Rochester horizontal, with single pulley.
Boring mill, Warner & Swasey horizontal.
Drill press, No. 1 Allen single spindle sensitive.
Planer, 30"x 30"x 10' Whitcomb, arranged for motor drive.

FOR SALE BY

The Randle Machinery Co., 1723 Powers Street, Cincinnati, Ohio

ENGINE LATHES.

14"x 6' Lodge & S., q. c.....	\$ 450.	20"x 10' American, q. c., single pulley drive, geared head.....	\$ 750.
15"x 6' Flather, loose change.....	200.	25"x 12' LeBlond, quick chge. 1,100.	
18"x 10' Greaves & K., q. c.....	675.	27"x 18' LeBlond, quick chge. 1,350.	
22"x 18' Niles, l. c., taper att.....	650.		

PLANERS.

32"x 32"x 14' American, 2 heads.....	\$ 1,250.
36"x 36"x 14' American, 2 heads.....	1,350.
36"x 36"x 18' Niles, double housing, each housing equipped with 2 rail heads, motor drive.....	1,500.
42"x 42"x 26' Cincinnati, 2 heads.....	2,250.
60"x 60"x 20' Niles, 4 heads, motor dr./ve.....	3,000.
Pedrick & Ayer open side, planes 30" wide, bed 11' long.....	1,000.

MISCELLANEOUS.

Bolt cutter, Acme 4" sgl. hd... Boring mill, 60" Niles vert., d. c. motor drive, with mtr ..	\$ 750.	Miller, No. 3 Brown & Sharpe plain.....	\$ 600.
Drill press, 28" Cincinnati up- right, b. g., single pulley, gear box drive.....	750.	Motor, 30 h. p. Jantz & Leist, d. c., 650 r. p. m.....	450.
Drill press, 45" upright, back geared, power feed.....	475.	Radial drill, 6' Niles full univ., d. c. motor dr., with motor.....	750.
Drill press, 24" Aurora up- right, back gear, pwr. fd.....	300.	Shaper, 12" Pratt & Whitney crank, traveling head.....	300.
Grinder, No. 60 Heald cylinder	275.	Shaper, 24" Barker, b. g. crank Turret lathe, 24" Gisholt, d.c. motor drive, with motor....	750.
Many other bargains. Send us your requirements.	750.		500.

SECOND-HAND MACHINERY

FOR SALE BY

Bennett Machinery Co.,

Boring mill, 51" Bridgeport.
 Lathe, 40"x13' Putnam, triple grd.
 Lathe, 32"x35' Bement Miles.
 Lathe, 26/48"x10' McCabe.
 Lathe, 24"x10' Draper.

30 Church St., New York City

Lathe, 18"x8' Davis, dbl. bk. grd.
 Milling mch., No. 4 B. & S. plain.
 Planer, 54"x12' Pond, 4 heads.
 Plate planer, 16' Niles.
 Punch, s. e., 26" throat, 4"x4".

FOR SALE BY

Herman L. Winterer,

943-53 N. Front St., Philadelphia, Pa.

LATHES.

43"x17 $\frac{1}{2}$ " Bement-Miles.
 37 $\frac{1}{2}$ "x14' Johnson d. b. g., q. c. f., t. a.
 32"x12' Pittsburgh, heavy duty, q.c.g.
 27"x12' Bullard.
 26"x11' Wickes, q. c. g.
 28"x10' Niles, q. c. g.
 25"x14' Hendey, q.c.g., taper attachment, oil pan, (2).
 24"x14' Porter.

21 $\frac{1}{2}$ "x8' LeBlond.
 20"x8'6" Walcott, d. b. g., q. c. g., (2).
 20"x8' Whitcomb Blaisdell, q. c. g.
 19"x10' Draper, patent head.
 18"x 8' Davis q. c., d. b. g.
 18"x 7' Chard, d. b. g., semi q. c. g.
 18"x8' to 8' lathes, (6).
 16"x 8' Greaves & Klusman, b.g., t.a.
 And many others.

TURRET LATHES.

3x28" Pond, triangle.
 3x36" Pratt & Whitney, hollow hex.
 20" Acme flat, 24" h. s. motor drive.
 20x7' 6" Pratt & Whitney, back grd.
 20x7' Bridgeport, 28 h. s.
 19"x7' Fay & Scott, back grd.
 No. 22 $\frac{1}{2}$ Garvin Monitor.

No. 3 Kempsmith.
 14"x 6" Warner & Swasey.
 16"x6' Johnson, back grd.
 No. 3 Bardons & Oliver back grd.
 14"x5' 3" Pratt & Whitney, (2).
 No. 3 Foster Kimball.

DRILL PRESSES.

42" Gang radial, s. p. speed box.
 40" Barnes horizontal radials, (2).
 36" Bickford radial, circular base, motor driven.
 28" Rockford, q. c. g. feed (2).

28" No. 3 Avey high speed.
 14" 6-spindle Allen sensitive.
 Henry & Wright sensitive.
 Plain drills, all sizes.
 Drill presses, assorted sizes.

MILLING MACHINES.

38"x6" Ingersoll horizontal slab.
 No. 5 Cincinnati, table 9 $\frac{1}{2}$ x50 $\frac{1}{2}$ ".
 No. 15 Garvin, table 12x42".
 No. 3 Becker Brainard, table 12x40".
 No. 3 Hendey-Norton, q. c. g.

No. 6Y Brown & Sharpe plain, (2).
 No. 8-C Becker vert., rotary table.
 No. 8-H Becker vert., table 14x43.
 No. 7-H Lincoln type Becker miller.

PLANERS AND SHAPERS.

12"x10'x25' Sellers planer, 4 heads.
 30"x30"x8' Hewes & Phillips planer.
 30"x30"x8' Putnam planer.
 26"x26"x 6' Hendey planer.
 24"x24"x6' Sellers planer.

48" Morton draw-cut shaper.
 39" Pedrick & Ayer, open side.
 26" Cincinnati.
 14" Warren shaper.

MISCELLANEOUS.

Band metal saw, 6x6 Napier.
 Boring mill, car wheel, 60" Newton.
 Boring mill, 36" Bausch & Harris vertical, double head.
 Boring, drilling and milling machine, 17 $\frac{1}{2}$ ' Bement Niles horizontal.
 Centering machine, 4" Whiton.
 Grinder, 13 $\frac{1}{2}$ "x5" Landis universal.
 Grinder, No. 1 Norton universal.
 Grinder, disc, No. 17 Besly.
 Grinder, disc, No. 1 Besly.
 Hammer, 15 lb. Bradley helve.
 Hammer, 25 lb. Little Giant, m. d.

Hammer, 40 lb. Bradley, helve.
 Hammer, 60 lb. Hotchkiss.
 Hammers, 60 lb. Bellefonte upright; 2
 Hammer, 500 lb. Merrill belt drop.
 Hammer, 1000 lb. Merrill board drop.
 Hammer, 1250 lb. Bell steam.
 Keyseaters, 18" stroke Morton, (2).
 Punch presses, all sizes, (55).
 Punch & shear, Industrial Wks. d.e.,
 capacity 4" in 4", squaring 4"x6".
 Slotter, 14" Niles.
 Tooth rounding mch., Schuchardt & Schutte.

Large assortment of General Machinery. Send for Complete List.

SECOND HAND MACHINERY

FOR SALE BY

Louis E. Emerman & Company, 1761 Elston Ave., Chicago, Ill.

Bending brake, Chicago, capacity $\frac{1}{2}'' \times 6'$, motor driven.....	\$ 850.
Bending rolls, Wickes Bros., capacity, $4'' \times 10'$	2975.
Drill presses, Kern 42", brand new.....	575.
Drill, multiple, Natco No. 30, $20'' \times 40''$ head, 48 spindles.....	1150.
Drill, multiple, Natco No. 32, $20'' \times 54''$ head, 42-14" spindles.....	1250.
Gear cutter, Brown & Sharpe No. 4, 36" capacity.....	450.
Gear generator, Gleason II.....	575.
Gear hobber, Newark No. 2.....	350.
Grinder, automobile cylinder, Baxter D. Whitney No. 23.....	875.
Hack saw, Peerless $9'' \times 5''$, motor driven.....	325.
Lathes, Gisholt 20" automatic turret.....	1750.
Milling machine, Valley City No. 14 universal, complete.....	775.
Planer, $24'' \times 24'' \times 8'$ Gray, single head.....	775.
Planer, $84'' \times 84'' \times 32'$ Putnam, 4 heads, with motor.....	4250.
Punch and shear, Williams-White No. 14, double end.....	1250.
Radial drills, Bickford $2\frac{1}{2}'$, single pulley drive.....	550.
Squaring shear, Long & Allstatter No. 4, $\frac{1}{2}''$ plate.....	850.

FOR SALE BY

Brownell Machinery Co., 11-13 Eddy St., Providence, R. I.

BORING MILLS.

24" Bullard, New Era type.....	$2\frac{1}{2}''$ Universal horizontal.
24" Bullard rapid production.....	No. 3A Universal horizontal.
30" Baush vertical.....	

DRILLING MACHINES.

3' Reed-Prentice plain radials.....	3-spdl. Reed-Prentice ball b., sens.
5' Baush & Harris plain radial.....	4-spdl. Barr, power fd. to each spdl.
25" Weigel upright.....	5-spdl. Henry & Wright, class "K."
23" Prentice heavy duty.....	4-spdl. Demco bench No. 34-A.

GEAR CUTTERS.

Whiton, hand feed.....	No. 13 B. & S. 18x4 spur & bevel.
No. 12 Brown & Sharpe, universal 12x8 spur and bevel.....	No. 3 B. & S. 26x8 spur & bevel. No. 612 Fellows gear shaper.

GRINDERS.

20" Blount wet tool.....	No. 1 LeBlond univ. tool and cutter.
No. 3 Wilmarth & Morman automatic surface, magnetic chuck.....	No. 12 B. & S. plain cylindrical. 10x72 Norton plain cylindrical.
No. 25 Bilton plain.....	

MILLING MACHINES.

No. 4 Cincinnati plain.....	No. 20 Ohio universal.
No. 15 Garvin plain, 42".....	No. 2B Rockford universal.
No. 25 Bilton plain.....	No. 6 Becker vertical.

PLANERS AND SHAPERS.

17" x 17" x 4' Whitcomb.....	16" Sellew shaper.
22" x 22" x 8' Whitcomb.....	20" Kelly, back geared.
26" x 30" x 14' Whitcomb-Blaisdell.....	

SCREW MACHINES.

No. 705 Rivett precision.....	No. 28 Garvin, g. f. h.
No. 2 Southworth.....	6A Potter & Johnston, late type.
No. 2 Wood tilted turret.....	2P Potter & Johnston piston and piston ring.

MISCELLANEOUS.

Broacher, bench, No. 00 LaPointe.....	Riveter, bench, No. 1 Grant rotary vibrating.
Oil extractor, No. 2 American.....	Sand blast, No. 1 Leiman Bros.
Pipe machine, No. 7-B Jarecki.....	Saw, band, 42" Clement.
Presses, inc., s. a., power, 2" No. 3B Standard Machinery Co.....	Saw, jig, No. 1 Beach.
Press, s. a., power, No. 4 Manville, ratchet roll feed.....	Saw bench, No. 650 Dover.
Press, 50 lb. Standard auto. drop.....	Saw bench, Rollston double arbor.
Press, 200 lb. Standard auto. drop.....	Shaft straightener 10' Rockt'd, 3" cap.
Rolling mill, 6x10 McWilliams.....	Slotter, 12" Bement-Miles.
	Tapping mech., No. 2 Garvin, auto.

SECOND-HAND MACHINERY

FOR SALE BY

The Reeve-Fritts Company.

Drill, 4-spindle Allen, b. b.
Drill, 10" Albany sensitive.
Grinder, No. 1 La Salle, surface.
Grinder, 3x18 Norton.
Lathe, 10"x5' Monarch, q. c. g.

558 Washington Blvd., Chicago, Ill.

Lathe, 14"x6' Rockford, q. c. g.
Lathe, 14x6' Hamilton, q. c. g.
Press, No. 21 Bliss, o. b. i.
Press, No. 30 L. & A., o. b. i.
Profiler, 2-spindle Leland.

FOR SALE BY

Tubor, Velick & Co., Inc., . . . 628-630 W. Lake St., Chicago, Ill.

Telephones: Monroe 4199-6813. No Branches

PUNCH PRESSES.

No. 4 Walsh, (5).
No. 7 Beatty, cap. 1 $\frac{1}{2}$ " in 1".
No. 15 Torris Wold.
16 $\frac{1}{2}$ " Toledo, 9 $\frac{1}{2}$ " stroke.
Stiles & Parker.
Nos. 13 & 15 single end punches.

DRILL PRESSES.

14" Excelsior.
20" b. g., p. f., new, \$130.
20" Weigel.

MILLING MACHINES.

No. 2 LeBlond.
No. 2 Cincinnati vertical.

LATHES.

11"x 5' Sterling.
14"x6' Prentice.
15"x 8' Sidney, q. c.
16"x 6' Sidney, q. c., (3).
16"x 6' Monarch q. c.
16"x 8' Canedy-Otto.
16"x 6' Hendey, q. c., taper att.
16"x 8' South Bend, q. c.
17"x 8' Sidney, q. c.

PLANERS.

24"x24"x6' Pond.
24"x24"x 8' Putnam.
30"x30"x 8' Fitchburg.

36"x36"x 7' Flather, 2 heads.
36"x36"x 8' Cincinnati.

SHAPERS.

14" Steptoe.
16" Ohio.
16" & 20" Whipp, b. g.

16" Columbia.
24" Rockford.
24" Kelly.

SCREW MACHINES.

No. 2 Pratt & Whitney, hand.
Warner & Swasey.

No. 2 Smith, hand.

GRINDERS.

No. 2 Manhattan surface.
No. 14 Besly, disc.
No. 2 Oakley, new.

No. 1 Grand Rapids, new.
10x36 Thompson, new.
Emery grinders, \$2 and up.

WOOD-WORKING MACHINERY.

Band saws, 36" Famous, new, (10).
Horing mills, Andrew, (3).
Glue jointer, Falls.

Planer, 30" Berlin.
Stickers, 6 and 9".
Swing saws, Porter, (4).

MISCELLANEOUS.

Band saw, metal, Atkins.
Buffers, U. S. and Westinghouse,
8 h. p., b. b.
Cold saw, No. 20 Lea-Simplex.
Hack saws.
Lift trucks, Barrett, 1 ton cap.
Motors, a. c. and d. c.

Paper cutter, Chandler & Price.
Punch & shear, No. C Cleveland.
Radial drill, 3 $\frac{1}{2}$ ' Canedy-Otto.
Radial drill, 3 $\frac{1}{2}$ ' Cin'ti Bickford.
Roll, power, 7" Beloit, 3" capacity.
Time clocks, International.
Woodworking machines.

Leather belting. Pulleys, shafting and hangers.

SECOND-HAND MACHINERY

FOR SALE BY

Donahue Steel Products Co., -

Bulldozers, Nos. 2, 3, 4, 5, 6, 7 & 8
Williams & White.

Hammers, cushioned helve, 25 to
200 lb. Bradley.

Hammers, upright, 50 to 500 lb.
Bradley.

Hammer, crank lift drop, No. 5
Williams & White.

Press, trimming, No. 57 Toledo, side
shear, motor drive.

Press, No. 4 Bliss, solid back.

Punch, s. e., Cleveland, $\frac{1}{8}$ " thru 1",
arch. jaw.

Punch, s. e., No. 1 Long & Allstatter.

Punch, s. e., No. 3 Long & Allstatter.

All of the above in our Chicago stock.

204 N. Jefferson St., Chicago, Ill.

Saw, hot, No. 2 Ajax.

Saw, hot, No. 3 Ajax.

Shear, bar, Long & A., cap. $1\frac{1}{2}$ " rd.

Shear, bar, Long & A., cap. 2" rd.

Shear, bar, Long & A., cap. $2\frac{1}{2}$ " rd.

Slotted, No. 3 Manville.

Storage battery elevating platform
truck, Auto. Transportation Co.

Threading machine, 2-sp. Landis,
1" cap., with lead screws.

Threading mch., sgl. sp. 3" Landis.

Thread roller, No. 6-B Manville.

Upsetter, $1\frac{1}{2}$ " National.

Upsetting and forging machines,

Ajax, 1", $1\frac{1}{2}$ ", 2" & 3".

FOR SALE BY

Reliance Machinery Sales Company

Brighton Road at Pennsylvania Ave., -

Pittsburgh, Pa.

Air compressor, 321' Laidlaw, b. d.
Bolt cutters, 3" Landis, single head,
lead screw, (2).

Boring mill, 36" Bullard, 1 head.

Boring mill, 34" Colburn, 1 head.

Boring mill, 72" Betts vert., 2 hds.

Boring mill, 90" Niles vert., 2 hds.

Buffer, No. 14 Builders Iron Fdry.

Bulldozers, Nos. 5, 6, 7 & 8 W.-W.

Die sinker, No. 6 Jackson.

Die slotted, $3\frac{1}{2}$ " stroke, Garvin.

Drill, 21" Cincinnati, s. h., t. a.

Drill, 24" Hoefer, sliding head.

Drill, 26" Rockford, sliding head.

Drill, 36" Snyder, sliding head.

Drill, 45" Snyder, sliding hd., t. a.

Drill, 2" Carlton high speed radial.

Drills, Amer. 4 & 5" radial g.b., s.p.d.

Drills, No. 2 Colburn, mfg. type, (4).

Drill, No. 2 Colburn 4-spdl. gang.

Drillers, 5-spindle Detroit, (2).

Flanging machine, McCabe.

Gear cutter, 24" Becker-B. auto.

Gear cutter, 36" Whiton.

Gear cutter, 60" Gould & E.

Hammer, 40lb. Bradley, cush. helve.

Hammer, 100 lb upright power, b. d.

Hammer, 2500 lb. Morgan, st. forg.

Lathe, 14"x8" Whitcomb-Blaidsell.

Lathe, 18x10" Reed, q. c. g., d. b. g.

Lathe, 20x12" Bradford, t. a.

Lathe, 24"x12" Rahn & L., q. c. g.

Lathe, 28"x16" Bridgeford, quick
change gear, double back grd.

Lathe, 30"x12" Johnson, triple grd.

Lathe, 34"x12" Le Blond, trip. grd.

Lathe, 36"x18" American, grd. hd.

Miller, No. 2 Cincinnati, h. p. vert.

Miller, No. 3 Hendey plain.

Miller, model "B" Becker, vert., s.p.d.

Nut tapper, $\frac{1}{2}$ " Acme, 6 sp., semi-aut.

Nut tapper, 2" National, 6-spindle.

Pipe machine, Jarecki, cap. 1" to 4".

Pipe machine, Cox, 24" to 8".

Pipe machine, Merrill, 24" to 12".

Press, No. 4 Toledo, o. b. i., 28" str.

Press, No. 5 Toledo, o. b. i., 4" str.

Press, No. 23 Stoll horning.

Press, No. 52 Bliss, s. a., 2" stroke.

Presses, Nos. 61 & 62 Bliss o. b., f. w.

Press, No. 73 Consolidated, o. b., 24" st.

Press, No. 74 Consolidated, o. b., 24" st.

Press, No. 65 Consolidated, geared.

Press, No. 94 Consolidated, 2" str.

Punch, Cleve., 24" thr. $\frac{1}{2}"$ x $\frac{1}{2}"$, m. d.

Punch, Cleve., 15" thr. $\frac{1}{2}"$ x $\frac{1}{2}"$, m. d.

Punch, No. 54 Hilles & J., $\frac{1}{2}"$ x $\frac{1}{2}"$.

Punch, 72" Cleve., $\frac{1}{2}"$ x $\frac{1}{2}"$, m. d.

Punch, 48" Cleve., $\frac{1}{2}"$ x $\frac{1}{2}"$, m. d.

Saw, No. 3 Ryerson h. s. friction.

Screw mchs., No. 52 National-Acme.

Screw mchs., No. 55 National-Acme.

Screw mchs., No. 53 National-Acme.

Screw mchs., No. 73 National-Acme.

Screw mch., No. 1 W. & S. with tools.

Screw machine, No. 2 Foster, pl. hd.

Screw machine, No. 2 W. & S., pl. hd.

Shaper, 16" Hollingworth, b. g. crank.

Shaper, 20" Cincinnati, b. g. crank.

Shaper, 24" Milwaukee, b. g. crank.

Shear, No. 5 Quickwork, cap. $\frac{1}{2}$ " pl.

Sh. No. 6 Quickwork, cap. $\frac{1}{2}$ " plates.

Sh., No. 20 Quickwork, cap. 12 gauge

Shear, No. 38 L. & A. alligator, $\frac{1}{2}$ ".

Shear, 48" Bertsch, 18" gap, 10 ga. cap.

Shear, 48" Niagara, 18" gap, $\frac{1}{2}$ " cap.

Shear, squaring, 96" Stoll, 16 ga.

Shear, squaring, 96" Power, 20 ga.

Threader, Geometric, cap. $\frac{1}{2}$ " to $\frac{1}{2}$ ".

Upsetter, 3" Acme.

Our warehouse is full of bargains. What have you for sale?

SECOND-HAND MACHINERY

FOR SALE BY

Botwinik Brothers, - **21 Sylvan Ave., New Haven, Conn.**

"Connecticut Machinery Merchants"

PROFILING MACHINES.

50 Reed-Prentice 2-spindle gear driven Profiling Machines, complete and practically brand new, price \$125 each, f. o. b. cars, New Haven, Conn. These machines sell regularly for \$1200 and are absolute bargains.

Send for our latest 52-page Catalog.

FOR SALE BY

The H. A. Smith Machinery Co., - - - **Syracuse, N. Y.**

BALANCING MACHINE.

Rockford style B, motor driven.

BORING MILLS.

Gisholt 36" vertical, with combination chuck in table.

Gisholt 42" vertical, 2 swivel heads.

Gisholt horizontal boring, drilling and milling machine, 4" bar.

Niles horizontal boring, drilling and milling machine, 4½" bar, bed plate 10'x12', and with 44" circular chucking table

DRILL PRESSES.

Allen 4-spindle ball bearing.

Barnes 34", bk. grd., sliding head.

Barr 6-spindle, 4" capacity.

Snyder 36", b.g., slid.hd., tap. attach.

Snyder 30", bk. grd., sliding head.

RADIAL DRILLS.

Niles 3½" universal.

Fosdick 5' universal, motor drive.

GEAR CUTTERS.

26" Brown & Sharpe No. 3.

Fellows No. 62 gear shaper, motor drive.

48" Gould & Eberhardt.

GRINDERS.

No. 10 Brown & Sharpe plain.

12x40 Modern plain.

12x36 Modern, new.

16x52 Landis plain.

10x72 Landis plain.

UNIVERSAL TOOL AND CUTTER GRINDERS.

Bath No. 2½ universal.

Brown & Sharpe No. 3 universal.

Wells No. 190 universal.

INTERNAL GRINDERS.

Bryant No. 10-A.

Madison Gisholt automobile cylinder grinder.

Brown & Sharpe No. 23.

KEYSEATING MACHINES.

Davis No. 2.

Baker Brothers No. 0.

LATHES.

12x6 Seneca Falls, with pan & taper.

14x24x5½" bed Barnes, gap.

12x6 Seneca Falls style E.

21x12 Porter, with increase swing att.

PORTER-CABLE LATHES.

Porter-Cable, with complete piston turning equipment.

MILLING MACHINES.

No. 1-B Kearney & Trecker plain.

Cincinnati No. 4 plain.

No. 3-B Kearney & Trecker univ.

No. 3 B. & S. vert., all power fds.

No. 13-B Brown & S. production.

Brown & Sharpe No. 5 vertical.

Cincinnati No. 3 plain.

PLANERS.

24"x24"x 6' Chandler.

36"x36"x24' Pond, 4 heads.

26"x26"x 8' Niles.

74"x54"x24' Pond, 4 heads.

26"x26"x10' Whitcomb.

AUTOMATIC SCREW MACHINES.

No. 2-A W. & S. hollow hex. turret lathes, with chucking equipment.

No. 0G Brown & Sharpe automatic.

21" Gisholt turret lathes, \$300 to \$500, according to condition, (3).

Cleveland 4½" automatic.

Cleveland 4½" automatic.

MISCELLANEOUS.

Cutting-off machine, Hurlbut-Rogers, 4".

Grinder, Sellers auto. twist drill.

Die slotting machine, Garvin.

Tapping machine, Garvin No. 2.

Tapping machine, Garvin No. 2X.

SECOND-HAND MACHINERY

FOR SALE BY

The Sebastian Lathe Co., • 1000 Culvert St., Cincinnati, Ohio

We have the following used tools, most of them taken out of our own shop, and in the case of our Sebastian Lathes they have been rebuilt and are in splendid condition.

Drill press, 18" Aurora, plain lever feed	\$ 100.
Drill press, 24" Aurora, sliding head, back geared, power feed, with tapping attachment	200.
Lathe, 13"x6" Sebastian type M, cone head, new	360.
Lathe, 13"x7" Sebastian type M, cone head, new	378.
Lathe, 13"x6" Sebastian type M, compound rest, turret on carriage	165.
Lathe, 16"x6" Sebastian type M, geared head, 3" single pulley drive, loose change gear, compound rest	400.
Lathe, 16"x8" ditto	425.
Lathes, 14"x5" ditto (4), each	375.
Lathe, 15"x5" ditto	385.
Lathe, 10"x4" speed lathe, hand rest	60.
Shaper, 10", make not known	75.
Toggle power brakes, 6' Robinson (2), each	600.
Turret chucking lathes, No. 4 Millholland (4), each	450.
F. O. B. cars Cincinnati, Ohio, crated for shipment. Subject to prior sale. Terms: one-third cash, balance sight draft attached to railroad bill of lading.	

FOR SALE BY

Norton-Broadway Machinery Co., 236-38 Broadway, Cincinnati, O.

LATHES.

12"x21"x8" Willard, gap, new	\$ 525.	24"x14" American, q. c., taper	\$ 900.
16"x6" Columbus, q.c., prae.new	295.	24"x12" Hoye & E., taper att.	
16"x6" Cincinnati, q.c.	275.	24"x12" Monarch, q. c., nearly new	1250.
16"x8" Monarch, q. c.		24"x24" Niles, cone pulley.	
18"x8" Kahn Carpenter, l. c.		28"x26" Niles, cone pulley.	
20"x10" Bradford, quick change, taper, late type	850.	New Artisan 11", q. c.	170.

MILLING MACHINES.

No. 2 Brown & S., sgl. pulley	\$ 75.	No. 5 Brown & Sharpe plain..	\$ 650.
No. 3 Brown & Sharpe plain ..	500.	No. 2 Cincinnati, old st. univ.	400.
No. 13-B Brown & Sharpe.			

DRILLS.

20" Silver, back geared.	42" Bickford radial.
24" Hoefer, 2-spindle	5" Niles universal radial, heavy.
28" Aurora, sliding head.	6" Niles universal radial, heavy.
No. 2 Colburn 20"	4" American radial, tapping attach.
30" Prentice radial	

PLANERS.

16"x18"x48" Hendey	\$ 275.	32"x32"x20" Cincinnati, 2 hds.	\$ 950.
36"x12" Woodward & P., 1 hd.	750.	42"x42"x26" Cincinnati, 2 hds....	2500.

BORING

84" Niles vertical, 2 heads	\$1550.	42" Colburn vertical, 2 heads..	\$ 900.
60" Betts vertical, 2 heads	850.	36" Niles, vertical, 2 heads....	750.
42" Bullard vertical, 2 heads	900.	42" Gisholt, 2 hds., gr. box, as is	500.

GRINDERS.

No. 2 Brown & Sharpe 12"x30"	
Brown & Sharpe, tool and cutter.	

MISCELLANEOUS.

Air compressors.	Punch & shears, 4 sizes Long & A.
Brake, power bending, 8'.	Screw machine, 4" Gridley, 4-spdl.
Brake, hd. pwr.bend'g, 10' Ohls & Co.	Screw machine, 16x7 New Britain.
Fencing press, 15-ton Lucas.	Shaper, 14" Rockford, crank.
Gear cutter, 36" Brown & S. No. 4.	Shaper, 16" Queen City, b. g.
Hammer, 1100 Erie, steam, and furnace, sgl frame, nearly new, \$1.100.	Shear, circle, No 10 Quickwork, 60" t.
Keyseater, No. 2 Davis, and cutters.	Turret lathe, No 6 Warner & S.
Punch presses, straight & inc., (8).	Turret lathes, 24" & 26" Gisholt.
	Wheel press, 400-ton, motor drive.

SECOND-HAND MACHINERY

FOR SALE BY

Fitzsimmons & Cole Machinery Company

Pittsburgh, Pa.

1208 House Building,

Air compressor, 10x12, 164 cu. ft.
Angle bending rolls, 4"x4"x $\frac{1}{2}$ ".
Bending rolls, 12"x $\frac{3}{4}$ " Kling, m. d.
Bolt cutters, 1 $\frac{1}{2}$ ", 2" & 2 $\frac{1}{2}$ " Landis.
Borer, car wheel, 42" N. B. P.
Boring mill, 60" Betts, 2 hds., m. d.
Boring mills, 42" and 52" King.
Brake, 10' Chicago, No. 12 gauge.
Cold saw, 18" Higley.
Coping machine, 24" L. & A.
Drill, radial, 4' Bickford, s.p.d., t.a.
Hammers, forging, 600 to 6000 lbs.
Lathe, 16"x6' South Bend, q. c. g.

Lathe, 50"x34' Pittsb'gh, q.c.g., m.d.
Pipe machines, 2" to 12".
Planers, 30" to 120".
Planer, rotary, 48" N. B. P.
Riveter, 80-ton Hanna, 102" reach.
Shaper, 24" Cincinnati, b. d.
Shaper, 24" G. & E., b. g.
Shear, No. 2 Lennox rotary bevel.
Shear, 10"x $\frac{3}{4}$ " United, m. d.
Shear, 8"x1" Bertsch.
Shear, 8"x1" Morgan.
Shear, 24" United, guillotine.
Testing machine, 100,000 lbs. Reihle.

FOR SALE BY

Jones Machine Tool Co.,

528-532 E. Front St., Cincinnati, O.

LATHES.

14"x 6' Bradford, quick change.
14"x 6' Monarch, qck. chg., s. p.,
geared head, (2).
16"x 6' Lodge & Shipley, qck. chg.
16"x 8' LeBlond quick change.

20"x12' Greaves Klusman, q. c.
24"x16' American, q. c., cone drive.
30"x12' H. S. & Gamble, q. c.
30"x16' Reed, l. c., cone drive.

MILLERS.

No. 1 $\frac{1}{2}$ B. & S. plain, (2).
No. 2 Hendey plain.

No. 2 Kempsmith plain.
U. S. hand miller.

PLANERS.

36"x36"x8' Flather, 2 heads.
30"x 8' Gray, 2 heads.

32"x20' American, 2 heads.
42"x36"x26' Cincinnati, 2 heads.

PRESSES.

No. 3 Toledo, o. b. inc.
No. 2 Robinson, o. b.
No. 6 Toledo, o. b. inc.

No. 19 Bliss, open back inc. (2).
No. 20 Bliss, o. b. inc., (8).
Hornung press, Swain.

SHAPERS.

14" Whipp, plain crank.
16" Barker, plain crank.
20" Steptoe, back geared crank.

21" American, back geared crank.
24" Barker, back geared crank.
24" Smith & Mills, bk. grd. crank.

SQUARE SHEARS.

40" Niagara, power.
96" P. S. & W. foot power, 20 ga.

96" Robinson, power, 14 gauge.
36" Bertsch foot power.

MISCELLANEOUS.

Bolt cutters, 4" Acme.
Drill presses, 24" Sibley & Ware (4).

Grinder, No. 60 Heald, cylinder.
Radial, 4' Bickford s. p. drive.

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BORING MILLS

- 4—Bullard 24" New Era type, vert.
- 2—Niles-Bement-Pond 32", vert.
- 1—Landis No. 35 horiz., floor type.

DRILLS—Upright and Radial

- 3—Snyder 28" vertical.
- 1—Minster D-3, heavy duty.
- 1—Mueller Radial, S. P. D.
- 1—Foote-Burt 44", 4-spindle, rail.
- 2—New Turner No. 3, vert. turret.
- 1—N.-B.-P. 96" Ridgeway, motor drive, plain radial.
- 1—Western 6', plain radial.
- 1—Bausch 6'.

DRILLS—Multiple Spdl., Rect. Head

- 1—Natco No. 14, q. c. g.
- 1—Natco No. 30, 12 spindle.
- 2—New Bausch No. 3, 21 spindle.
- 1—New Bausch No. 4, 56 spindle.
- 1—Fox, 6 spindle.

PLANERS

- 7—Putnam 28x26x8", 2 heads.
- 1—Woodward & P. 36x36x12", 4 hds.
- 1—Putnam 48"x48"x12", 2 hds., m.d.
- 2—Cleveland 30x30x8 and 36x36x8 openside, NEW.

MILLERS—Plain, Miz., Univ. & Vert.

- 2—Milwaukee No. 14 plain.
- 1—Brown & Sharpe No. 2 plain.
- 1—Milwaukee No. 3-B universal.
- 1—Milwaukee No. 3-B plain.
- 2—Briggs type B.
- 2—Taylor & Fenn vertical.
- 1—Becker No. 4B and No. 5C vert.
- 1—Becker "C." vertical.
- 1—Becker No. 2H, vertical.
- 1—Newton No. 1 duplex.

GRINDERS

- 1—Blanchard No. 16, motor driven.
- 1—Springfield-B., 12x12x48 vert.
- 1—Brown & Sharpe No. 14 plain.
- 16—Cincinnati No. 2, 12x36.
- 4—Norton 6x32 & 2—Norton 10x36.
- 1—Fitchburg 12x54.
- 1—Norton 16x36.
- 4—Heald Nos. 60, 65 & 70.
- 3—Heald rot. sur. Nos. 210, 255, 280.

PRESSES

- 2—Toledo No. 53, flywheel.
- 4—Toledo No. 55 & No. 55 $\frac{1}{2}$, grd.

GEAR CUTTERS

- 2—Barber-Colman No. 2.
- 4—Hercules 8".
- 2—Brown & Sharpe 3x26.
- 1—Brown & Sharpe No. 13.
- 1—Gould & Eberhardt 60", spur.
- 1—Fellows Nos. 61, 6 & 612.
- 1—Gleason 6", 11" & 18", bevel.

TURRET & SCREW MCHS.

- 1—Foster No. 1-B turret.
- 1—Warner & Swasey No. 3-A.
- 2—Foster No. 2-B turret.
- 1—Warner & Swasey No. 4, p. f.
- 1—Warner & Swasey No. 2, p. f.
- 1—New Foster No. 10 turret.
- 4—Greenlee, 2 $\frac{1}{2}$ x26" turret.
- 4—J. & L. 2x24.
- 1—J. & L. 2 spindle turret.
- 1—J. & L. 3x36", flat.
- 1—Acme 1 $\frac{1}{2}$ " turret.
- 2—P. & W. 1x14 screw.

SHAPERS and SLOTTERS

- 1—G. & E. 16".
- 2—New 16" Davis, s. p. d.
- 1—American, 28".
- 1—Newton 10" slotter.
- 1—Pratt & Whitney 10" slotter.

AUTOMATIC SCREW MCHS.

- 8—New Britain No. 34.
- 2—Cleveland 2 $\frac{1}{2}$ " Model A.
- 15—Cleveland $\frac{1}{2}$ " to $\frac{1}{2}$ " capacity.
- 1—Cleveland $\frac{1}{2}$ " to $\frac{1}{2}$ " capacity.
- 7—Gridley 4 spindle, cap. 14".

LATHES

- New Star Lathes, all sizes with all attachments.
- 12—New South Bend 16x8 and 18x8 gap; 21x14.
- 10—New South Bend 15x5.
- 1—LeBlond 26x12, univ. crankshaft.
- 1—Walcott 28x14, 6", q. c. g.
- 1—Johnson 30x12, motor dr.

MISCELLANEOUS

- 1—Acme bolt cutter, 3" cap., motor.
- 1—National bolt cutter, 2-spdl., 1 $\frac{1}{2}$ ".
- 1—Landis 1 $\frac{1}{2}$ " bolt cutter, dbl. hd.
- 1—Landis 1 $\frac{1}{2}$ " 3-sp. mtr. dr. bolt cut.
- 1—Erie 1100 lb. hammer.
- 1—Quickwork No. 4-B rot. shear.
- 1—New Quickwork No. 6 rot. shear.

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USED

BOLT CUTTERS

1½" Landis, single head.
1½" National, double head.

BORING MILLS

30" Bullard, 3-j. ck., b. fd., mtr. br. (3).
36" Bullard vertical Turret Lathe.
4-jaw ind. chuck, cutting lubricant.
42" Baush, 2 swivel hds., pl.tbl., m.d.
42" Bullard Rap. Prod., 2 swiv. hds.
44" Bullard Maxi-Mill 2 swivel hds.,
4-jaw ind. ch., cutting lubricant.
No. 9 Giddings & Lewis horizontal,
t. & l. pulley drive.
No. 25 Giddings & Lewis hor., m. d.
No. 350 G. & L. hor. floor type, pul. dr.

DRILLS

Mechanics friction sensitive.
3 spindle 16" Prentice h. s., sl. hd.
20" Prentice, lever feed.
20" W. F. & J. Barnes, square base,
wheel & lever, power feed, (6).
4-spndl. 20" Barnes, pwr. fd., w. & l.
23" Rockford s. hd., b.g., pwr. fd., (3).
24" Avey s. hd., hvy. sen., pwr. fd.
24" Kern s. hd., b. g., grd. fd., t. a.
42" Cincinnati Bickford sliding head,
back gears, pwr. fd., tap. attach.
No. 14 Natco, bored for 22--equipped
with ten 1½" spds., motor drive.
Colburn No. D-5 Heavy Duty.
W.F. & J. Barnes Hor. Dril. & Bor. (3).

RADIAL DRILLS

3" Western pl., gear box, boxtbl. (3).
3½" American pl., gear box, sw. table.

GANG DRILLS

4-sp. Cin. Bickford, 28" s. h., b.g., p.f.
Moline No. 6-D, 24" r.l., 8 BV-14 hds.
Moline No. 7-D, 24" rail, 4 No. 28
heads, (4).
Moline No. 11-D, 5" r.l., 8 BV-14 hds.
Moline No. 16-D, 24" r.l., 6 BV-20 hds.
Moline No. 17-D, 24" r.l., 8 BV-14 hds.
Moline No. 7-D Cylinder Boreers,
30" rail, 4 CWL-30 heads (3).

GEAR CUTTERS

50"x12" Gould & Eberhardt, spur
only, rack cutting attachment.
No. 6 Fellows Gear Shaper.

GRINDERS

No. 1 Cincinnati Pl. Cutter Grinder.
No. 2 Brown & S. Cutter Grinder.
No. 3 Brown & S. Cutter Grinder.
8"x24" Brown & S. pl. cylindrical.
12"x48" Cincinnati pl. cylindrical.

GRINDERS—Continued

12"x48" Cincinnati univ. cylindrical.
10"x72" Norton plain, NEW (2).
No. 6 Bryant internal.
No. 20 Heald Rotary Surface.
Pratt & Whitney Vert. Surface.
Gardner No. 4 disc (3).
Diamond face grinder, motor drive.

LATHES

9"x18" Porter-Cable.
11"x5" Star, hol. spdl., comp. rest.
16"x6" L. & S., 3-step, d.b.g., c.r., pan.
16"x6" Reed, 3-step cone, s.b.g., c.r.
16"x8" Bradf. d., 3-st. cone, b.g., c.r.t.
18"x8" S. & B., 3-step, d. b. g., c. r.
18"x13" Lehmann, 3-step, d.b.g., hol.
spdl., comp. rest, quick ch. gears.
20"x8" Lodge & Shipley, 5 step cone,
sgl. bk. grs., c. rest, qk. ch. grs.
20"x10" Monarch, 3-step cone, d.b.g.,
hol. spdl., comp. rest, q. c. taper.
24"x12" Reed, 4-st. cone, s.b.g., c.r.
28"x14" LeBlond, 3-st. c. d.b.g., c.r.

MILLING MACHINES

No. 3 Cincinnati, pl. high power, (4).
No. 3 Cincinnati vert. high power.
No. 4 Becker-Brainerd vertical.
No. 6 Becker-Brainerd vertical.
Putnam Lincoln type, (3).

PLANERS

24"x24"x 6' Cincinnati, 1 head.
66"x66"x17' Harrisburg, 2 heads.

SAWS

Newton cold saw.
Klemm metal band saw.
No. 5 Marvel hack saw.

SCREW MCHS. & TURRET LATHES

No. 90 Brown & Sharpe automatic.
No. 1-A Warner & S. hol. hexagon.
No. 53 National-Acme automatic.
No. 6 Potter & Johnston.
3"x33" Jones & L. flat tur., grd. hd.
21"x10" Gisholt, 3-jaw chuck.

SHAPERS

14" Gould & Eberhardt, (3).
20" Gould & Eberhardt, (2).
24" Gould & Eberhardt.

MISCELLANEOUS

Fitchburg Lo-Swing lathes, (2).
No. 5 American o. b. press, bk. grd.
Production polishing machines, (2).
H. Collier Smith circular shear, 30"
throat, geared.
No. 4-A Etna swaging machine.

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At Less Than Half The Cost of New

No. 79½ Bliss Straight Side Tie Rod Press,
20" or 9" stroke—will give either.

Condition, first class

For immediate shipment:

- 5½-7½" Cleveland Model A Screw Mch., Ser. No. 27360.
- 2" Cleveland Model A Screw Machine, Ser. No. 26302.
- No. 2-G Brown & S. Auto Screw Machine, Ser. No. 3950.
- No. 1½ Valley City Universal Miller.
- No. 2-B & 2-B Heavy Brown & Sharpe Millers.
- No. 3 Cincinnati Plain Millers.
- No. 3 Kempsmith Plain Miller.
- No. 3 LeBlond Heavy Plain Miller.
- 6"x32" Norton Plain Grinder.
- 14"x72" Norton Plain Grinder.
- 16"x48" Landis Crank Pin Grinder.
- No. 12 Natco Multiple Drill.
- 12"x32" Landis Universal Grinder, nearly new.
- 16" Stockbridge Shaper, single geared.
- 20" Rockford Back Geared Shaper.
- 24" Kelly Back Geared Crank Shaper.
- 30"x30"x8' Ohio Planer, heavy type.
- Five Bolt Cutters, 1½" to 4" capacity.
- No. 2 Waterbury Farrel Trimmer, Nearly New.
- Nos. 0, 2 and 3 Mitts & Merrill Keyseaters.
- 80 lb. Bradley Cushion Herve Hammer.
- No. 3 Barber-Colman Gear Hobber, nearly new.
- 36" Cincinnati Back Geared Drill & Tapping Attach.

**24" and 36" Bullard Vertical Turrets,
excellent condition.**

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NEW 3 PHASE MOTORS CHEAP. 3 H. P. \$57.50; 5 H. P. \$67.50

LATHES

9" to 13" Barnes, h. s., cp. r., new.
12" x 5' Cleveland, geared head.
14" x 8' Young.
14" x 6' Hamilton, grd. hd., motor dr.
14" x 8' Sidney, double back geared.
14"x10' Reed-Prentice.
16" x 8' Sidney, double back geared.
18"x10' American, quick change.

TURRET LATHES and
13" Tilted turret hand screw mchc.
1" and 10" Mulholland.
2x24 & 3x36 J. & L., dbl. equipment.
No. 3-B Foster, 5" capacity, new.

14" Niles, traveling head.
14" Steptoe, crank.
16" American, tool room.

24"x24"x 6' Gray.
32"x32"x 8' Gray.

Nos. 3-A & 6-A Willard inclinable.
No. 1 Toledo inclinable.
Nos. 1 $\frac{1}{2}$, 2, 2 $\frac{1}{2}$ & 4 Robinson.

DRILLS and RADIALS
3' and 3 $\frac{1}{2}$ ' Silver, new, gear box.
3' & 4 $\frac{1}{2}$ ' Morris plain gear box.
3 $\frac{1}{2}$ ' Canedy-Otto plain, new.
4' Universal Radial Drill Co. plain.
Sensitive 1, 2, 3, 4 and 6 spindle.

No. 2 Kempsmith universal.
U. S. and Whitney hand.
No. 25 Becker plain, power feed.
No. 1 B. & S. universal.
Nos. 2-A & 4-B Becker vertical.

Nos. 1, 3 & 78 W. & M. surface.
No. 2 W. & P. 10x30 universal.
6"x15" Fitchburg plain.
12x36 Cincinnati universal.
12x42" & 16"x30" Landis plain.
12"x72" Brown & Sharpe plain.
36" and 66" Yates plate.

MISCELLANEOUS

Band saw, metal, Klemm.
Band saws, Napier 4"x4", 10"x10".
Bending rolls, 7' for 3 $\frac{1}{2}$ plate.
Boring mill, Colburn No. 3, tur. hd.
Boring mill, 54" & 60" Colburn, 2 hds.
Brake, 10', 18-gauge metal.
Broaching machine, No. 3 LaPointe.
Cold saw, Burr. 3" capacity.
Compressors, 5x4, 8x8 and 12x10.
Drawing tables, adjust. 42"x6' top.
Gear cutter, 26" No. 3 B. & S.
Gear millers, Bilton No. 1, (5).
Hammer, 40 lb. Bradley, helve.
Hammer, 150 lb. Standard drop.

18"x 8' Bradford, h. s., steady rest.
20"x10' Prentice, taper.

24"x24' Prentice, with raising block.
25"x12' Sidney heavy duty.
25"x14' Schumacher & Boye.
28"x 8' Bridgeford, heavy duty.
Ames precision bench, 1" & 1" cap.
8x60" & 10x72" Fitchburg Lo-Swing.

SCREW MACHINES

6" Gridley auto., single spindle.
Nos. 52 and 56 National Acme.
1" P. & W. automatic, single spdl.
21" Gisholt.

SHAPERS

16" & 24" Barker, b. g. crank.
16" Smith & Mills, b. g. crank.
20" Walcott, geared.

PLANERS

26"x36"x10" Cincinnati, 2 heads.
60x60x17" Betts, 2 heads.

PRESSES

Emco, bench, for radio parts.
No. 35 Niagara straight side.
Perkins, dbl. housing, wt. 4,000 lbs.

RADIALS

22", 24", 26", 28" and 32", sliding hd.
20"-24" & 26" Barnes, all geared.
4-spindle Sigourney sensitive.
4-spindle Reed sensitive.
Electric drills, Thor, all sizes.

MILLING MACHINES

No. 3 LeBlond, with vertical attach.
No. 2 H Brown & Sharpe plain.
Briggs type "A" high duty, 24x8 table.
No. 7 Becker Lincoln type.
Oesterlein 24x7x18 plain.

GRINDERS

Perfection cylinder.
No. 60 Heald cylinder.
Nos. 2 & 3 Ohio universal & tool.
No. 4 Gardner 20" double disc.
No. 20 Bryant, chucking.
B. & S. No. 24 dbl. spdl., cylinder.
Capital internal, new, 2"x2".

Oil separator, Springfield.
Pipe machines, 2", 4", 6" & 12".
Pumps, Gould triplex, 6x8" & 7x8".
Punch & shear $\frac{1}{2}$ by $\frac{1}{2}$, 10" throat.
Riveter, 1" Schuster.
Riveting hammers, No. 3-A h.sp. (2).
Scale, 1500 lb. Toledo, dial type.
Sceleroscopes, Shore, (2).
Shear, 5' Robinson, for 10 gauge.
Shear, No. 20 Quickwork, 30" throat.
Shear, circular, Pettingell 60".
Slotted, 18" Bement-Miles.
Tapping mchc., 1" Rickert-Shafer.
Threading mchc., W. & P. 2-spindle.

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1-6' Double Truss—Hand	\$ 60.
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DRILL PRESSES—DRILL PRESSES

6-10" Barnes Friction type-elevating tables, each	\$ 15.
1-12" Allen Ball Bearing High Speed	65.
1-15" Francis Reed Sensitive, 4 spindle	95.
1-15" Taylor & Fenn Sensitive, 2-spindle, with tapping attachment	95.
5-19½" Barnes, 3 spindle, each	60.
11-20" Barnes, Prentice and Superior, each	45.
1-22½" Barnes 3 spindle, Heavy Duty, mfg. type, b. g., sliding head, p. f.	295.
1-25" Snyder Heavy Duty back geared, power feed, sliding head	125.

HELVE HAMMERS—HELVE HAMMERS

1-80 lb. Bradley Type	\$195.
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LATHES—LATHES

1-18"x8" LeBlond, Quick change, Double back geared, Turret & Steady Rest, countershaft and 2 face plates	\$295.
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PRESSES—PRESSES

1-No. 0 Baird with $\frac{1}{4}$ H. P., A. C. Mtr., Flywheel type	\$150.
1-No. 3 Stiles Straight Side, stroke 1½", Flywheel type	175.
2-No. 4 Stiles Str. Side, stroke 1½", Flywheel type, ea.	345.
2-No. 4 American Can stroke 1½", Flywheel type, ea.	395.
1-No. 4 American Can stroke 3½", Flywheel type	445.
1-No. 5 Howard Straight Side, stroke 1½", Flywheel type	195.

RIVETERS—RIVETERS

2-3A High Speed, each	\$125.
3-4A High Speed, each	175.
1-5A High Speed, with adjustable table, operated by compressed air	\$295.

SHEARS—SHEARS

1-Robinson 10' Toggle, b. g., weight approx. 20,000 lbs.	\$850.
1-No. 1 Badger, Grd., pwr., cuts 1" angles, flats, rounds.	95.

SHAPERS—SHAPERS

1-16" Kelly, back geared, with 2½ H. P., D. C. Motor	\$200.
1-24" Gould & Eberhardt, back geared	300.

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Liquidation Sale

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**Aultman & Taylor Machinery Co.,
Mansfield, Ohio**

Random Selections

- Air Compressor, belted, Chicago 9"x11", m. d.
Air Compressor, steam driven Imperial 10, 2-stage Duplex 888 cu. ft., steam ends 12"x16"; air 19"x16" & 12"x16": 90%.
Air Compressor, steam, Ingersoli-Rand, 1000 cu. ft. single stage.
Boring Mills, Barret 36", cylinder.
Boring Mills, Bausch 60", 2-heads, screw cutting.
Boring Mills, Bullard 36", New Era 85%.
Boring Mills, Bullard 54", Maxi Mills. 85%.
Boring Mills, King, 2-42" & 3-52", 85 to 90%.
Bending Rolls, 12"x1" Niles Pyramid.
Bending Rolls, 16"x14" Pyramid, motor driven.
Bull Riveter, 108"—62 ton 1" capacity Pedrick & Ayer.
Butt Welder, Federal 65 KW, 3-phase 60-cycle 440-volts.
Butt Welder, Winfield 20 KVA, 3-phase 60-cycle 440-volts.
Cutting-Off Machine, Huribut Rogers, 4" capacity.
Hydraulic Press, Metalwood No. 20 Forging.
Hydraulic Press, Metalwood 65-ton Straightening.
Hydraulic Press, Niles 400-ton 10'x30', M. D., Wheel Press.
Hydraulic Press, Defiance Rim No. 4, 60-ton.
Grinder, Norton plain 14"x72".
Grinder, Norton plain 10"x52".
Grinder, Norton 22"x34"x120", crankshaft.
Grinders, Landis plain 16"x48", crankshaft.
Grinders, Landis plain 12"x52".
Grinder, Bath universal Nos. 2½ & 4 B. & S. universal.
Lathes, American 24"x12", m. d. 3-a., d. b. g., 90%.
Lathes, American 20"x16" geared head, motor driven, 90%.
Lathe, Fifield 24"x24" 5-step cone.
Lathe, Lodge & Shipley 36"x18" patent head, 80%.
Lathe, Lodge & Shipley 38"x18" t. geared head, m. d., 90%.
Punch & Shear, Long & Allstatter No. 2, b. d., 48" throat.
Punch & Shear, Southwark No. 5½ Shear, b. d., 56" throat.
Punch & Shear, Hilles & Jones No. 2 Horizontal Punch.
Punch & Shear, Southwark No. 5 Punch, b. d., 48" throat.
Punch & Shear, Southwark No. 5 Punch, m. d., 48" throat.
Punch & Shear, Southwark No. 4 Punch, m. d., 48" throat.
Punch & Shear, Southwark No. 4 Punch, m. d., 36" throat.
Punch & Shear, Southwark No. 5 Punch, m. d., 60" throat.
Low-Swing Lathe, 4"x108", 90%.
Gisholt Turret Lathe, 28" swing.
J. & L. Turret Lathes, 2"x24" & 3"x36".
Libby Lathes, 6-18" swing.
Cranes, Toledo 30' span; 2—5 ton and 1—7½ ton, 3-phase 60-cycle 440-volts.
Yoke Riveter, 40 Ton, 60" throat, 5" capacity.
Yoke Riveter, Hanna Pneumatic 38½" throat, 18" gap, 8"x12" cylinder.
Yoke Riveter, Hanna Pneumatic 12" throat, 12" gap, 8"x10" cylinder.

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Liquidation Engineers

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New Combination Journal and Axle Turning Lathes
New & Used Nos. 2 & 3 Axle Lathes, Center Drive

VERT. & HORIZ. BORING MILL

- 1-30" Rogers & Hemphill, 1 turret hd.
- 2-36" Niles, 2 heads.
- 1-42" Baush, 2 heads.
- 1-52" Baush, 2 heads.
- 1-72" Pond, 2 heads.
- 1-10" Pond, 2 heads.
- 1-Binse, 2 $\frac{3}{4}$ " Bar.
- 2-Binse, 3 $\frac{1}{2}$ " Bar.
- 1-No. 2 Niles, 4" Bar.
- 1-6" Niles, 6" Bar.

CAR WHEEL BORERS

- 1-48" Niles, with Crane.
- 1-48" Putnam, with Crane.
- 1-48" Pond, with Crane.

AXLE & WHEEL LATHES

- 2-No. 2 Niles, center drive.
- 4-No. 3 Niles, center drive.
- 1-No. 3 Putnam, center drive.
- 4-Locomotive Axle Lathes.
- 2-Comb. Axle & Jour. Lathes.
- 1-42" Niles Car Wheel Lathe.
- 4-3 $\frac{1}{2}$ "x60" Lo-Swing Lathe.

GRINDERS

- 1-No. 60 Head Internal.
- 1-10" Landis Internal.
- 2-6"x32" Norton Plain.
- 3-6"x20" Fitchburg Automatic.
- 3-12"x30" Fitchburg Plain.
- 1-12"x30" Fitchburg Automatic.
- 2-16"x66" Landis Plain.
- 1-26"x96" Landis Plain.

ENGINE LATHES

- 1-14"x6" Hendey.
- 1-16"x6" Hendey.
- 8-14"x6" Reed Prentice.
- 4-17"x6" LeBlond.
- 4-19"x8" LeBlond.
- 1-18"x8" Oliver.
- 1-36"x26" Putnam.
- 1-33"x18" Bridgeford.
- 1-24"x24" Putnam.

ENGINE LATHES—Continued.

- 1-24"x16" Lodge & Shipley.
- 4-18"x10" Lodge & Shipley.
- 1-30"x12 $\frac{1}{2}$ " Oliver.
- 1-50"x20" Fifield.
- 1-60"x40" Fifield.
- 1-50"x28" Fifield.
- 1-96"x24" Fifield.
- 1-96"x36" Fifield.
- 1-96"x60" Fifield.

TURRET LATHES & SCREW MCHS.

- 2-3"x36" J. & L.
- 2-2-A Warner & Swasey.
- 1-3-A Warner & Swasey.
- 4-No. 4 Warner & Swasey.
- 4-No. 3 Stecher.
- 1-No. 1 Foster.
- 1-No. 2 Foster.
- 1-No. 2 Warner & Swasey.
- 1-No. 6 Foster.
- 1-No. 9 Foster.

MISCELLANEOUS

- 1-48"x48"x12' Ingersoll Mill.
- 1-24"x24"x10' Ingersoll Mill.
- 1-No. 1 $\frac{1}{2}$ American Plain Mill.
- 1-Van Norman Hand Mill.
- 1-No. 1 $\frac{1}{2}$ Van Norman Duplex Mill.
- 1-No. 2-A Brown & S. Univ. Mill.
- 1-No. 1-M Cincinnati Mill Plain.
- 2-No. 3 Kempamith Plain Mill.
- 1-No. 3 Cincinnati Plain Mill.
- 1-3 $\frac{1}{2}$ " Acme Bolt Cutter.
- 1-4" Cox Pipe Machine.
- 1-2" Jarecki Pipe Machine.
- 1-6" Oster Pipe Machine.
- 3-No. 2 Pratt & W. Auto. Millers.
- 1-16" Davis Shaper.
- 1-20" Davis Shaper.
- 1-24" Davis Shaper.
- 1-20" Steptoe Shaper.
- 1-Ingle Tooth Rounder.
- 1-No. 3 Farwell Gear Hobber.
- 1-No. 1 Farwell Gear Hobber.

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	Each
8-2½" Gridley single spindle turret.....	\$ 600.
3-3½" Gridley single spindle turret.....	700.

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2-24" Bullard, 1 turret, 1 side head.....	\$1500.
1-36" Bullard, 1 turret, 1 side head.....	1850.
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1-84" Pond special extra heavy.....	3000.

DRILLING MACHINES

2-24" Mueller radials round column, gear box.....	\$ 600.
1-72" American round column gear box.....	1500.
1-Sipp high speed type BW 8" overhang.....	175.
1-23" Rockford four spindle.....	700.

GRINDING MACHINES

1-14"x96" Norton Cylindrical, new.....	\$2800.
1-14"x50" Norton Cylindrical.....	900.
1-5"x18" Ott Cylindrical, equal to new.....	500.
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HAMMERS

1-3000 lb. Chambersburg steam drop.....	\$2250.
1-800 lb. Billings-Spencer board drop.....	700.

LATHES

1-72"x56' Niles-Bement-Pond geared head.....	\$12000.
1-36x16 Niles-Bement-Pond geared head.....	2750.
6-25x12 LeBlond heavy duty cone.....	950.
4-17"x8' LeBlond heavy duty cone.....	600.

MILLING MACHINES

1-No. 5 Cincinnati plain.....	\$ 900.
1-No. 2 Cincinnati universal.....	1200.
1-No. 13 Garvin plain, new.....	375.
1-No. 3B Brown & Sharpe, plain.....	650.

PLANERS

1-60x60x14 Powell extra heavy.....	\$3200.
1-36x36x14 Cincinnati, two heads.....	1500.
1-24x24x8 Cincinnati, one head.....	500.

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Brown & Sharpe No. 2-B heavy plain.....	\$ 950.
Cincinnati No. 4 plain.....	2000.
Cincinnati No. 4 plain.....	250.
LeBlond No. 4 plain.....	700.
LeBlond No. 4 plain.....	650.
Knight No. 1½ vertical.....	750.

Drilling Machines

Allen 2-spindle b. b.	\$ 150.
Sigourney 2-spindle b. b. (2) each.....	100.
22" Aurora upright.....	225.
20" Barnes 4-spdl. gang.....	450.
3' Bickford radial.....	325.
5' Bickford radial.....	700.
2½" Gang radial.....	325.
3' Hilbert radial.....	550.
4' Fosdick radial, sp. box.....	1000.
5' Niles universal radial.....	550.
6' Universal plain radial....	400.

Grinding Machines

B. & S. No. 2 surface.....	\$ 390.
B. & S. No. 11 plain.....	1100.
B. & S. No. 16 plain.....	1400.
LeBlond universal cutter.....	375.
Cincinnati univ. cutter.....	450.
Landsis 10x20 plain.....	325.
Bath universal.....	175.
12" Diamond wet tool.....	50.
20" Blount wet tool.....	85.

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14x8 Lodge & Shipley, q. c. g., taper and chuck.....	\$ 350.
16x8 Greaves-K. standard.....	375.
16x8 Bradford, qck. c. g., drawin collets and chuck.....	750.
18x10 Kahn-Carpenter std.	400.
20x8 Prentice standard.....	225.
20x8 Hendey, q. c. g., taper and chuck.....	750.
28x14 Pratt & W. standard.....	375.
36x16 Putnam standard....	550.

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Bolt and Cap Screw Machinery

- 4 Waterbury-Farrell triple stroke headers—Nos. 2 and 3.
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24"x24"x12' Ingersoll.
No. 7 Becker Mfg.
No. 2½ Hendey Mfg.
No. 5.C Becker Vertical.
No. 3 Brown & Sharpe Vertical S. P. D.

LATHES

11"x 5' Myers.
12"x 5' Vernon Q. C. G.
14"x 6' Monarch Q. C. G.
16"x 6' Draper.
16"x 8' Bradford Q. C. G.
20"x 8' American Q. C. G.
24"x12' American Q. C. G.
36"x32' LeBlond Q. C. G. 2 carr.

PRESSES

No. 55 DGG Ferracute S. S. 70 ton pres.
No. 56 DGG Ferracute S. S. 100 ton pres.
No. E-57 Ferracute S. S. 1500 ton pres.

MISCELLANEOUS

6' H. D. Plate Bending Roll, cap. ½" plate.
150 ton Caldwell Hydraulic Wheel Press.
60 ton Defiance Hydraulic Wheel Press.
Shipbuilders Angle Iron Beveling Machine.
1½" Ajax Forging Machine.
1½" Carlin Alligator Shear.
1½" G. & McK. Rod Shear.
60" L. & A. Plate Shear, 36" throat, cap. 1" plate.
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6' N. B. P. Radial, tapping attachment, M. D.

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30" and 36" BULLARD boring mills, 3-jaw chuck tables.

36" GISHOLT turret boring and turning mill.

52" (swings 58") ROGERS-HEMPHILL boring mill, 2 heads.

24" bar LUCAS horizontal, gearbox drive.

DRILL PRESSES

26" BARNES, sliding head, back gear, power feed.

3-spindle BARNES 22", back gear, power feed.

5" and 6" AMERICAN radials, gearbox, tapping attachment.

No. 15 HARRINGTON 4-spdl. rail type, 14" cap.

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No. 12 BARBER-C. hobsers (2). | No. 6 FELLOWS gear shaper.

MILLING MACHINES

No. 4 ROCKFORD universal, | Model "A-B" BECKER vertical.

also plain.

No. 3 CINCINNATI vertical. | No. 4 LeBLOND plain.

PLANERS

26"x26"x8' CINCINNATI, one | 36"x36"x10' WILSON, 2 heads,

head.

like new.

30"x30"x6' POND, one head. | 36"x30"x12' GORTON, 2 heads.

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The above is small part of our stock. Send for List No. 102.

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Of Machine Tools and Plant Equipment of the
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GRIDLEY'S

2" to 11" Gridley multiple spindle automatic screw machines.
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18"x 8' Hamilton. | 24"x 12' Reed.
14"x 5' F. E. Reed. | 14"x 6' Pratt & Whitney.
20"x 10' American.

TURRET LATHES

6-A Model 2 Potter & Johnston | Fitchburg Low-Sw. 3½x60-3½x80-8x80.
auto. turret lathe. | 12"x8" & 3"x36" Pratt & Whitney.
Nos. 3, 4 & 6 Warner & Swasey. | 2"x26" Pratt & Whitney.
3"x36" Jones & Lamson. | 7-A Chucking machines.
24" Gisholt, 6" hole. | Fay Auto. 12" Plain and Taper.

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4" Dreses, 20"x30" table.

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Nos. 413 & 416 Baker Brothers. | 16-spindle multiple Bausch, b. d.
No. 23 Foote-Burt 2-spdl. gang. | 24-spindle multiple Baush.
22" Barnes 3-spindle gang.

PRESSES

Cleveland single end punch, 12".thr. | 15-ton Lucas geared force.

GRINDERS

10A Bryant internal. | 12"x42" Landis universal.
No. 615 Fitchburg cylindrical. | No. 2-A Landis universal.
No. 2 Gould & Eberhardt cutter.

MISCELLANEOUS

Nos. 3 & 3A LaPointe broach. mch. | No. 2 Garvin auto. tapping mch.
Thompson type "C" riveter. | 6 Gear testing machines.

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75 h. p. General Electric, 900 r. p. m. | 50 h. p. Wagner, 900 r. p. m.
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30 h. p. Wagner 700 r. p. m. | 30 h. p. Wagner, 900 r. p. m.
30 h. p. Fairbanks-Morse, 900 r. p. m. | 30 h. p. Fairbanks-Morse, 1200 r.p.m.
15 h. p. Wagner, 900 r. p. m. | 10 h. p. Fairbanks-Morse, 900 r. p. m.

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Drill Presses, used 10" Winterhoff bench, $\frac{1}{2}$ " capacity (2) each....	35.
Drill Press, used single spindle Reed, ball bearing, like new....	175.
Grinder, used Detroit Centerless Grinder.....	300.
Grinder, used Capital Internal Grinder.....	250.
Grinder, used No. 1 Woods Universal Tool & Cutter.....	275.
Grinder, used No. 2 Webster & Perks, 10"x30" universal cylindrical, modern tool, good as new.....	650.
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Lathe, Porter Cable Mfg. 9"x14", with countershaft drive.....	325.
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Lathe, 14"x6' used Porter Engine Lathe.....	150.
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Lathe, used 13"x8" Wjard, double back gear.....	225.
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Miller, new No. 11 Rockford Plain Miller.....	950.
Miller, new No. 2 Plain, constant sp., hi-pwr., with all auto. fds.....	1850.
Millers, used U. S. Hand Millers, good condition (2) each.....	130.
Miller, used No. 5 Becker Brainard, b. g., 14"x42" table.....	375.
Screw Machine, used No. 1 Garvin Plain, practically new.....	195.
Shaper, used 24" Ohio Back Geared Crank, fine condition.....	750.
Tapping Machine, used No. 2-X Garvin Auto., good condition.....	275.
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- No. 59 Hendley & Whittemore single end, $\frac{1}{2}$ " in $\frac{3}{4}$ ".
- Rock River Single End 1- $\frac{3}{16}$ "x1", 48" throat.
- No. 8 Whiting, single end, 1- $\frac{3}{16}$ "x1", 48" throat.

PRESSES

- No. 18 Bliss o. b. i., plain.
- No. 3 Rockford o. b. i., plain.
- No. 3 Consolidated o. b. i., geared, $2\frac{1}{2}$ " stroke.
- No. 4 Rockford o. b. i., grd.
- No. 37½ Bliss str. sided, pl.
- No. 55 Consolidated plain straight sided, 4" stroke.
- No. 512 Niagara str. sided, with auto. friction clutch.

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84" swg. x 46' bed Putnam Grd. Hd.
66" swg. x 46' bed Putnam Grd. Hd.
62" swg. x 28' bed Wickes.
60" swg. x 28' bed Putnam Grd. Hd.
54" swg. x 20' bed Pond.
30" swing x 20' bed McCabe, Quick Change Cone Drive.
30" swing x 14' High Duty Lathe, Quick Change.
26" swg. x 14' bed N.B.P. Motor-dr.
24" swing x 14' bed Reed-Prentice.
42" Baush Boring Mill, 2 heads.
24" Stroke. Niles-Bement-P. Slotter.
4' Arm Radial, Carlton.
No. 2 Cincinnati Vert. Milling Mch.

42" Baush Boring Mill, 2 hds.
50" Bridgeport Boring Mill, 2 hds.
24" Str., N.B.P. Slotter, mtr.-dr.
4' Arm Carlton Radial.
No. 3 Cincinnati Plain Miller.
8x30 Modern Grinder.
No. 3 Baker Keyseater.
18" Ohio Shaper.
20" Smith & Mills Shaper.
No. 6 Bliss Prem.
28" Espen-Lucas Cold Saw.
50 lb. Mayer Bros. Hammer.
25 lb. Dupont Hammer.
22" Gleason Bevel Gr. Planer.

These Tools still set up in operation, special prices before moving to warehouse.

PLANERS

94" x 60" x 30' Pond, 4 heads.
54" x 54" x 12' Pond, 4 heads.
18" x 48" x 14' Sellers, 3 heads.

PLANERS—Continued

48" x 48" x 15' Pond, 2 heads.
26" x 26" x 6' Niles, 1 head.

McCABE "2-in-1" DOUBLE SPINDLE LATHES

38" / 60" swing x 32' bed—complete with Geared Face Plate, Taper Attachment. Can also include motor and silent chain.
26" / 48" swg. x 14' bed Geared Face Plate.
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18" Double End Punch and Shear.
42" Perkins Punch.
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8" Rolls, heavy type, power raise,
10" Bending Rolls, drop end housing.
19" Gap Air Riveter.
800-lb. Bement-M. Steam Hammer.

Big Lathe

110" Swing, 40' Bed,
Triple Geared Lathe.
Cone drive or can be arranged for belted
motor drive with motor on top of headstock.

Used Milling Machines—Horizontal Vertical and Slab Millers.

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- 1— $4\frac{1}{2}$ " Standard type, heavy duty, MUELLER radial drill, gear drive.

Prices will arouse interest

Write and Satisfy yourself

The Mueller Machine Tool Company

Radial Drills and Lathes

ESTABLISHED 1902

CINCINNATI, O.

SOME SPECIALS PRICED TO MOVE

Slightly used. With a good-as-new, money-back guarantee

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10x36 Norton Plain.
14x36 Norton Plain.
No. 10 B. & S. Plain.
No. 70 Head Internal.
No. 21 Besley Disc.

AUTOMATICS

3-1/2" Cleveland Model A.
3-1/2" Cleveland Model A.
No. 55 Four Spindle Acme.

DRILLS

No. 4 Avey H. S. Sensitive.
20" four spindle Rockford.
No. 14 Natco.
36" Colburn Heavy Duty.
4" Western Radial.
4" American Sens. Radial.
4" Bickford Radial.

TURRET LATHES

No. 4 Warner & Swasey Univ.
24" Bullard Vertical.
36" Gisholt Vertical.

MILLERS

No. 2 Rockford Univ., S. P. D.
Nos. 2 & 3 Cincinnati Plain.
4" P. & W. Spline Miller.
No. 28 Ohio Plain.
28" Cincinnati Plain.

MISCELLANEOUS

No. 4 W. & W. Bulldozer.
24"x14" Davis Lathe.
4"x60 Lo-Swing Lathe.
9x9 Peerless Power Saw.
4" Higley Cold Saw.
20" Steptoe Shaper.
24x24x8" Powell Planer.

Above is partial list—Send us your inquiries

Mid-West Machine Tool & Supply Co.
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- 6-14" x 6' Rockford.
- 5-18" x 8' Boye & Emmes.
- 30-20" x 8' American.
- 14-20" x 8' LeBlond.
- 5-20" x 12' American.
- 5-20" x 16' American.
- 20-21" x 10' LeBlond.
- 10-24" x 11' Cisco.
- 3-24" x 12' Providence.
- 1-24" x 15' Chard.
- 1-24" x 16' Lodge & Shipley.
- 1-24" x 24' Lodge & S. selective hd.
- 7-25" x 10' LeBlond.
- 10-25" x 12' LeBlond.
- 24-26" x 10' Canada.
- 10-26" x 18' Bridgeford.
- 15-32" x 12' Pittsburgh.
- 4-36" x 30' Pittsburgh Geared Hd.
- 3-36" x 37' Niles Bement Pond.
- 1-51" x 20' LeBlond.
- 1-55" x 64" x 19' Johnston.
- 1-60" x 18' Johnston.

MILLERS

- 2-No. 1 1/2 B Milwaukee.
- 5-No. 2 Kempsmith.
- 3-No. 2 Rockford.
- 2-No. 28 Ohio.
- 7-No. 2 B Hvy. Brown & Sharpe.
- 4-No. 3 Kempsmith.
- 9-No. 3-B Hvy. Brown & Sharpe.
- 2-No. 4 Cincinnati.
- 2-No. 4 LeBlond.
- 1-No. 5 Cincinnati, Hi-power.
- 3-No. 4 Becker.
- 2-No. 3 Cincinnati Vertical.
- 2-No. 4 Cincinnati Vertical.
- 4-No. 5-C Becker.
- 3-No. 6 Becker.

BORING MILLS—Vertical

- 3-24" Bullard "New Era."
- 1-44" Niles Bement Pond.

BORING MILLS—Vertical—Cont.

- 1-48" Colburn.
 - 1-54" Bullard.
 - 1-43" Colburn.
 - 2-62" King.
 - 3-72" Cincinnati.
- ## BORING MILLS—Horizontal
- 1-No. 31 Lucas.
 - 3-3" Foote-Burt.
 - 1-No. 3 Rochester Floor Borer.
- ## DRILL PRESSES
- 1-36" Snyder.
 - 1-No. 121 Baker.
 - 1-No. 24 Foote-Burt.
 - 1-No. 25 Foote-Burt.
 - 6-No. 23 2-spdl. Henry & Wright.
 - 1-3-spindle Henry & Wright.
 - 4-6 spindie Allen.

PLANERS

- 1-24" x 24" x 6' American.
- 1-24" x 24" x 6' Liberty.
- 2-36" x 36" x 10' Bickett.
- 1-36" x 36" x 12' Woodward & P.
- 3-36" x 36" x 18' Cincinnati.
- 3-42" x 42" x 10' Gray.
- 1-72" x 56" x 36' Cincinnati.

GRINDERS

- 3-6" x 18" Landis.
- 12-10" x 36" Norton.
- 3-10" x 12" Norton.
- 3-12" x 26" Modern.
- 11-14" x 50" Norton.
- 1-16" x 72" Norton.
- 1-18"-30" x 96" Norton Gap.

PRESSES

- 2-No. 4 Walsh.
- 1-No. 74 1/2 Bliss Geared.
- 1-No. 75 1/2 Bliss Geared.
- 1-No. 93 A Toledo Double Crank.
- 1-No. 205 Toledo Double Crank.
- 1-No. 94 F Toledo Double Crank.
- 1-No. 69 Stoll Geared.
- 1-No. 87 Bliss Geared.

*Our Guarantee: Your money back if you return
a machine within thirty days, freight prepaid.*

Hill, Clarke & Co. of Chicago
649 W. Washington Blvd., Chicago, Ill.

BMTL-I-RTG

To Buy a Good Used Machine

Tool From "Oviatt"—Is An Investment, Not An Expense

Toledo Knuckle Joint Coining Press, No. 666.
Toledo Straight Side Press, No. 59 $\frac{1}{4}$.
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Ferracute P-4 Geared Press.
Bliss No. 2-W Wiring & Reducing Press.
Bliss Toggles, Nos. 1 $\frac{1}{2}$ and 3 $\frac{1}{2}$ -A.
Geo. A. Ohls 8' 6" Brake, Capacity 10 gauge.
Bullard 24" Vertical Turret Lathe.
Cincinnati-Acme 2 $\frac{1}{4}$ "x24" Flat Turret, Grd. Hd.
Libby 18" Turret Lathes, (4) Excellent.
Warner & Swasey Nos. 2-A & 3-A Universal.
Warner & Swasey Nos. 4 and 6 machines.
Gridley 2 $\frac{1}{4}$ " & 3 $\frac{1}{4}$ " Single Spindle Automatics.
W. F. & J. Barnes 26" Drill Press, Tapping Att.
Henry & Wright 2-spdl. High Speed Drill Press.
Colburn D-4 Drills (2), mounted on one base.
No. 17 Foote-Burt 4 Spindle Adj. 2" Cap.
Smith & Mills 17" Shaper.
Briggs Millers, Type "B" 34"; Type "A" 22".
Brown & Sharpe No. 3-A Universal Miller.
Becker Vertical Millers, Nos. 5-C and 6.
Betts 3" Bar Horizontal Boring Mill.
Oesterlein Universal Tool Grinder, No. 3.
Norton No. 1 Tool & Cutter Grinder.
High Speed Riveting Hammers, Nos. 3A-HD & 4A.
American No. 2 Oil Separators.
Acme Bolt Cutters, 2 $\frac{1}{2}$ " Single.
Garvin Tappers, Nos. 2 & 2-BG.
Draw Benches, 25,000 and 15,000 pound Cap.
Bulldozers, W. & W. Nos. 3, 4, 7 & 8.
Canton No. 5 Alligator Shear.
New Britain Auto. Chucking Nos. 33 & 24.
Libby 26" Turret Lathe, hole in spindle 7 $\frac{1}{2}$ ".

*The Above And Hundreds Of Other
Machine Tools In Stock*

D. C. OVIATT & CO.
1102 St. Clair Ave., Cleveland, Ohio

LIQUIDATION SALE

Holmes Automobile Company, Canton, O.

Equipment purchased new since 1917—
Used little and in good condition

- 3—Valve Grinders, Misch.
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- 2—No. 2 & No. B J. N. La Pointe Single Broaching Machines.
- 2—No. 3 Kempsmith Plain Millers.
- 1—No. 3H LeBlond Plain Miller.
- 1—No. 4 Cincinnati High Power Universal Miller.
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- 2—24" Hoefer Sliding Head Drills, b. g., p. f., square tables.
- 2—23" Rockford Stationary Head Drills, b. g., p. f., round tables.
- 4—16" Henry & Wright class K, double spindle B. B. Drills.
- 2—24" Henry & Wright class A, single spindle B. B. Drills.
- 1—No. 17D Moline 4-spindle Hole Hog Drill, 20" swing.
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- 1—No. 315 Baker High Duty Drilling Machine.
- 1—No. 2X Garvin Automatic Tapper.
- 1—No. 2 International Vertical Tapper.
- 2—No. 2 W. & S. Screw Machines, a. c., b. feed, p. f. turret.
- 1—No. 1 W. & S. Screw Machine, a. c., b. feed, p. f. turret.
- 2—1" Millholland Screw Machines, a. c., b. feed, h. f. turret.
- 1—2" Garvin Screw Machine, a. c., b. feed, p. f. turret.
- 1—2" Cleveland automatic Screw Machine, Class B, latest type, h. s. drilling attachment, Serial 29694, 95%.
- 1—5A Potter & Johnston Automatic, serial 20679, 90%.
- 1—No. 33 New Britain Automatic 5-spindle, serial 6729.
- 2—No. 12 Barber-Colman Gear Hobbers, serial 933 and 1007.
- 5—9"x20" Porter & Cable Lathes.
- 1—24"x 8' Bridgeford Chucking Lathe, with hex. turret.
- 1—24"x12' LeBlond Eng. Lathe, raised in sand to 32", taper attachment.
- 1—16"x 6' Fulton Lathe, compound rest.
- 1—19"x 8' LeBlond H. D. Engine Lathe, q. c. g., compound rest.
- 1—20"x 8' Whitcomb-Blaisdell Lathe, q. c. g., compound rest.
- 1—15"x 6' Sidney Engine Lathe, p. f., turret on shears.
- 2—21" Gisholt Turret Lathes.
- 1—No. 14 Brown & Sharpe Plain Grinder.
- 1—No. 2 Bath Universal Grinder.
- 1—No. 103 Rivett Internal Grinder.
- 2—No. 60 Heald Internal Grinders.
- 1—14"x 6' Hendey Lathe, taper and draw-in attachments.
- 1—14"x 6' Hendey Lathe, plain.
- 1—10x10 Ingersoll-Rand Air Compressor, class ER-I.
- 1—42"x20"x20' Fixed Rail Slab Miller, Ingersoll.

Motors, 3 ph., 60 cyc., 220 v.; Electric Japan Ovens 12"x20"x8' 6", with conveyor 70' centers; Hanna Yoke Riveter; Vises; Belting; and many other machines not mentioned.

Write or call at plant for prices and other information.
Private sale will continue until all equipment is sold.

Holmes Automobile Company Liquidation
Dept. Canton, Ohio

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Entire Machine Tool Equipment of Our Modern Plants
at Peru, Indiana, and Pittsburgh, Penna.

A Few Choice Bargains

1—No. 0 Barnes Speed Drill.....	\$ 15.
1—Farwell Hand Miller.....	35.
1—6" Power Hack Saw	10.
1—Greenfield Tool Grinder	25.
2—24" Sliding Head Drill Press..... each	110.
3—3' Bickford Radial Drills	each 300.
1—3½" W. E. Gang Radial Drill	200.
1—3½" Universal Radial Drill	250.
2—No. 4 Quint 5-hole Turret Head Drills..... each	175.
3—No. 60 Heald Cylinder Grinders..... each	300.
1—No. 1½ Cincinnati Universal Miller.....	150.
1—20"x12" Mueller Lathe, C. R., & 12" Chuck	250.
1—18"x8" Lodge & Davis Lathe.....	150.
1—14"x4" American Lathe	110.
1—18"x10" Schumacher & Boye Lathe.....	175.
1—30"x12" Fay & Scott Lathe	225.
1—2" Warner & Swasey Screw Machine.....	75.
1—2" Garvin Hand Screw Machine	75.
1—14" Gisholt Turret Lathe	125.
1—50" Niles Vertical Boring Mill—2 heads.....	600.
1—36"x36"x12" Planer—2 heads.....	575.
1—18"x9" Draper Lathe, Single Pulley Drive.....	250.
1—16" Dreses Lathe.....	75.

All the Above Tools are in Operating Condition

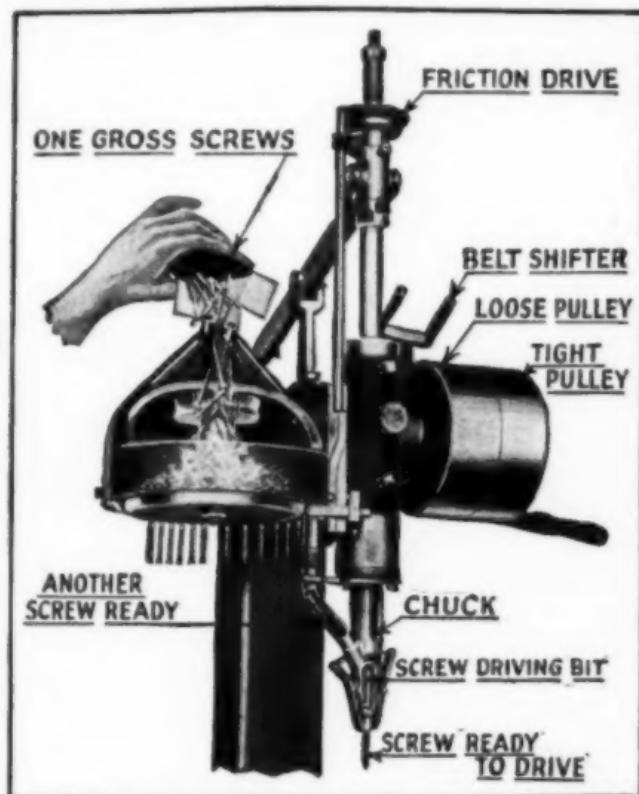
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It is self-evident that an automatic magazine-fed machine will handle screws with greater facility than anything else.

Just dump a gross or more of machine or wood screws into the hopper and press a foot lever—that's all. Saves 65 to 85 per cent over any other method.

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Classified Finding Index

Air Gages
Powell Co., Wm., Cincinnati

Arbors, Solid
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Auto-Gages For Dies
Danly Machine Specialties, Inc., 4913 Lincoln Ave., Chicago

Automatics
New Britain Machine Co., New Britain, Conn.

Balancing Ways
Anderson Bros. Mfg. Co., Rockford, Ill.
Bowsher Co., N. F., South Bend, Ind.

Balls, Bearing and Burnishing
Abbott Ball Co., Hartford, Conn.

Band Saw Machines, for Metal
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Porter-Cable Machine Co., Syracuse, N. Y.

Barrels, Tumbling
Abbott Ball Co., Hartford, Conn.
Scully-Jones & Co., 2012 W. 13th, Chicago

Belt Shifters
Artisan Manufacturing Co., Cincinnati, O.

Beach Legs, Steel
Angie Steel Stool Co., Plainwell, Mich.
New Britain Mch. Co., New Britain, Conn.

Bending Machines, Hand and Power
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whitemore Co., Beirut, Wis.
Lowwhite Mch. Co., T. H. 417E, 31st, N.Y.
Laurie Mfg. Co., Springfield, Ill.
Pedrick Tool & Machine Co., Philadelphia

Boring Bars
Pedrick Tool & Machine Co., Philadelphia

Boring Bars, Cylinder
Pedrick Tool & Machine Co., Philadelphia

Boring Machines, Horizontal
Avery Drilling Machine Co., Cincinnati
Morris Machine Tool Co., Cincinnati, O.
Pedrick Tool & Machine Co., Philadelphia
Rockford Drilling Machine Co., Rockford, Ill.

Cabinets, Tool
Angie Steel Stool Co., Plainwell, Mich.

Burnishing Equipment, Ball
Abbott Ball Co., Elmwood, Conn.

Casters for Trucks
Hamilton Caster & Mfg. Co., Hamilton, Ohio

Chains, Power Transmission
Whitney Mfg. Co., Hartford, Conn.

Chuck Machines
New Britain Mch. Co., New Britain, Conn.

Chucks, Collet
Apex Machine Co., Dayton, O.
Hardinge Bros., Inc., 1770 Bertrand Ave., Chicago

Chucks, Drill
Apex Machine Co., Dayton, O.
Barber-Colman Co., Rockford, Ill.
Jacobs Mfg. Co., Hartford, Conn.
Scully-Jones & Co., 2012 W. 13th, Chicago
Titan Tool Co., Erie, Pa.
Westcott Chuck Co., Oneida, N. Y.

Chucks, Drill and Tap
Barber-Colman Co., Rockford, Ill.
Peter Bros. Mfg. Co., Algonquin, Ill.
Scully-Jones & Co., 2012 W. 13th, Chicago

Chucks, Keyway Cutting
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

Chucks, Lathe
Westcott Chuck Co., Oneida, N. Y.

Chucks, Wrenchless
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

Clamps, Die
Danly Machine Specialties, Inc., 4913 Lincoln Ave., Chicago

Clutches, Friction
Edgemont Machine Co., Dayton, O.

Cold Saws
Burke Machine Tool Co., Conneaut, Ohio
Peter Bros. Mfg. Co., Algonquin, Ill.

Collects
Apex Machine Co., Dayton, O.
Hardinge Bros., Inc., 1770 Bertrand Ave., Chicago

Contract Work Wanted
Burke Machine Tool Co., Conneaut, O.
Cowdrey Machine Works, C. H. II., Fitchburg, Mass.

Counterbores and Spot Facers
Glenzer Co., J. C., Detroit, Mich.

Cranes, Portable
Canton Foundry & Mch. Co., Canton, Ohio

Crank Pin Turning Machine
Pedrick Tool & Machine Co., Philadelphia

Cutters, Keyseating
Davis Keyseater Co., Rochester, N. Y.
Scully-Jones & Co., 2012 W. 13th, Chicago
Whitney Mfg. Co., Hartford, Conn.

Cutters, Milling
Barber-Colman Co., Rockford, Ill.
Genesee Mfg. Co., Rochester, N. Y.
Whitney Mfg. Co., Hartford, Conn.

Cutting-Off Machines
Peter Bros. Mfg. Co., Algonquin, Ill.

Cylinder Boring Machines, Portable
Pedrick Tool & Machine Co., Philadelphia

Dial Indicators
Federal Products Corp'n., Providence, R. I.
Wallace Brothers, 160 N. Wells St., Chicago

Die Sets
Danly Machine Specialties, Inc., 4913 Lincoln Ave., Chicago

Classified Finding Index

Dies, Pipe Threading
Bignal & Keeler Mfg. Co., Edwardsville, Ill.

Dies, Self-Opening Adjustable
Rickett-Shafer Co., Erie, Pa.

Drill Racks
Peerless Machine Co., Racine, Wis.

Drilling Machine Heads, Multiple
National Automatic Tool Co., Richmond, Ind.
United States Drill Head Co., Cincinnati

Drilling Machines, Bench
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Reed Co., Francis, Worcester, Mass.
Rockford Drilling Machine Co., Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Horizontal
Morris Machine Tool Co., Cincinnati, O.
Rockford Drilling Machine Co., Rockford, Ill.

Drilling Machines, Multiple Spindle
Avey Drilling Machine Co., Cincinnati
National Automatic Tool Co., Richmond, Ind.
Reed Co., Francis, Worcester, Mass.
Rockford Drilling Machine Co., Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric
Independent Pneumatic Tool Co., 600 W.
Jackson Blvd., Chicago
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chgo
Wisconsin Electric Co., Racine, Wis.

Drilling Machines, Post
Mueller Machine Tool Co., Cincinnati

Drilling Machines, Radial
Morris Machine Tool Co., Cincinnati, O.
Mueller Machine Tool Co., Cincinnati
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Sensitive
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Leland-Gifford Co., Worcester, Mass.
Reed Co., Francis, Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.
Wisconsin Electric Co., Racine, Wis.

Drilling Machines, Vertical
Avey Drilling Machine Co., Cincinnati
Leland-Gifford Co., Worcester, Mass.
Rockford Drilling Machine Co., Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Drills, Twist
Cleveland Twist Drill Co., Cleveland, O.

Drilling and Tapping Attachments
Barber-Colman Co., Rockford, Ill.
Reed Co., Francis, Worcester, Mass.

Dust Handling Equipment
Knickerbocker Co., Jackson, Mich.

Emery Wheel Dressers and Cutters
Precision Truing Machine & Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Feeders, Oil and Soda Water
New Britain Machine Co., New Britain, Conn.

Flexible Shafts
Strand Co., N. A., 5001 N. Lincoln St., Chgo

Forgings, Hollow Bored
American Hollow Boring Co., Erie, Pa.

Furnaces, Heat Treating, etc.
Kidder, A. H., Canton, Ohio

Furniture, Machine Shop
Kalamazoo Steel Goods Co., Kalamazoo, Mich.
New Britain Machine Co., New Britain, Conn.

Gauges, Piston and Piston Ring
Federal Products Corp'n, Providence, R. I.

Gauges, Thread
Federal Products Corp'n, Providence, R. I.

Gear Cutting Machines
Barber-Colman Co., Rockford, Ill.

Gears
Boston Gear Works Sales Company, Norfolk
Downs, Mass.

Grinding Machines, Belt
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Peerless Surfacing Machine Co., Troy, N. Y.

Grinding Machines, Bench
Bodine Electric Co., 2256 W. Ohio St., Chgo.
Gallmeyer & Livingston Co., Grand Rapids,
Mich.

Grinding Machines, Cutter, Reamer and Tool
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Jarecki Mfg. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio
Wilmart & Norman Co., Grand Rapids, Mich.

Grinding Machines, Cylinder
Whitney & Son, Baxter D., Winchendon, Mass.

Grinding Machines, Cylindrical
Jarecki Mfg. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Die
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Jarecki Mfg. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio
Wilmart & Norman Co., Grand Rapids, Mich.

Grinding Machines, Disc
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Porter-Cable Machine Co., Syracuse, N. Y.

Grinding Machines, Drill
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
La Salle Tool Co., La Salle, Ill.
Wilmart & Norman Co., Grand Rapids, Mich.

Grinding Machines, Face
Taylor & Fenn Co., Hartford, Conn.

Classified Finding Index

Grinding Machines, Internal

Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio
Whitney & Son, Baxter D., Winchendon, Mass.
Wilmart & Norman Co., Grand Rapids, Mich.

Grinding Machines, Portable Electric

Rodine Electric Co., 2258 W. Ohio St., Chicago
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago
Porter-Cable Machine Co., Syracuse, N. Y.
Service Tool, Die & Mfg. Co., 2258 Walnut Street, Chicago
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chicago
Wisconsin Electric Co., Racine, Wis.

Grinding Machines, Snagging

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.

Grinding Machines, Surface

Gallmeyer & Livingston Co., Grand Rapids, Mich.
La Salle Tool Co., La Salle, Ill.
Thompson Grinder Co., Springfield, Ohio
Wilmart & Norman Co., Grand Rapids, Mich.

Grinding Machines, Tap

Gallmeyer & Livingston Co., Grand Rapids, Mich.

Grinding Machines, Tool

Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Universal

Gallmeyer & Livingston Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio
Wilmart & Norman Co., Grand Rapids, Mich.

Hack Saw Blades

Pearless Machine Co., Racine, Wis.

Hack Saw Machines

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Peerless Machine Co., Racine, Wis.
Racine Tool & Machine Co., Racine, Wis.

Hammers, Air

Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago

Hammers, Power

Quickwork Co., St. Marys, Ohio

Hammers, Riveting

Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago
Quickwork Co., St. Marys, Ohio

Hardness Testers

Wilson-Macaulay Co., St. Marys St. & Concord Ave., New York

Hoists

Barber-Colman Co., Rockford, Ill.

Hoists

Ford Chain Block Co., Philadelphia, Pa.
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

Keyseating Machines

Burr & Son, John T., Brooklyn, N. Y.
Chattanooga Mchly. Co., Chattanooga, Tenn.

Davis Keyester Co., Rochester, N. Y.
National Machine Tool Co., Cincinnati
Whitney Mfg. Co., Hartford, Conn.

Lathe Accessories and Attachments

South Bend Lathe Works, South Bend, Ind.

Lathes, Bench

Hardinge Bros., Inc., 1770 Bertau Ave., Chicago
Monarch Machine Tool Co., Sidney, O.
South Bend Lathe Works, South Bend, Ind.

Lathes, Engine

Boye & Emmes Mch. Tool Co., Cincinnati, O.
Carroll Mch. Tool Co., A. V., Cincinnati, O.
Hardinge Bros., Inc., 1770 Bertau Ave., Chicago

Monarch Machine Tool Co., Sidney, O.
Morris Machine Tool Co., Cincinnati, O.
Mueller Machine Tool Co., Cincinnati
Porter-Cable Machine Co., Syracuse, N. Y.
Sebastian Lathe Co., Cincinnati, O.
South Bend Lathe Works, South Bend, Ind.

Lathes, Fox Monitor

Barker Co., Wm., Covington, Ky.

Lathes, Gap

Carroll Mch. Tool Co., A. V., Cincinnati, O.

Lathes, Short Bed

Artisan Manufacturing Co., Cincinnati, O.

Monarch Machine Tool Co., Sidney, O.

Porter-Cable Machine Co., Syracuse, N. Y.

Lathes, Turret

Monarch Machine Tool Co., Sidney, O.

Mandrels, Expanding

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Metal Cutting Machines, Sheet

Quickwork Co., St. Marys, Ohio

Milling Attachments

Burke Machine Tool Co., Conneaut, Ohio
Porter-Cable Machine Co., Syracuse, N. Y.

Taylor & Fenn Co., Hartford, Conn.

Milling Cutters

Barber-Colman Co., Rockford, Ill.

Milling Machines, Bench

Burke Machine Tool Co., Conneaut, Ohio

Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio
Whitney Mfg. Co., Hartford, Conn.

Milling Machines, Plain

Burke Machine Tool Co., Conneaut, Ohio
Gallmeyer & Livingston Co., Grand Rapids, Mich.

Milling Machines, Portable

Pedrick Tool & Machine Co., Philadelphia

Milling Machines, Spline

Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Vertical

Burke Machine Tool Co., Conneaut, Ohio
Taylor & Fenn Co., Hartford, Conn.

Classified Finding Index

- Mills, Adjustable Hollow**
Genesee Mfg. Co., Rochester, N. Y.
- Motors, Electric**
Reliance Electric & Eng. Co., Cleveland
Wisconsin Electric Co., Racine, Wis.
- Oil Cups**
Gita Bros. Mfg. Co., 1940 S. Kilbourn Av., Chicago
Tucker, W. C. & F. C., Hartford, Conn.
- Oil Hole Covers**
Tucker, W. C. & F. C., Hartford, Conn.
- Pattern Shop Machinery**
Towsley Mfg. Co., John T., Cincinnati
- Pins, Leader And Dowel**
Dandy Machine Specialties, Inc., 4913 Lincoln Ave., Chicago
- Pipe Bending Machines**
Pedrick Tool & Machine Co., Philadelphia
- Pipe Cutting and Threading Machines**
Signal & Keeler Mch. Whs., Edwardsville, Ill.
- Planers, Openside**
Cleveland Planer Co., Cleveland, O.
- Planers, Valve Seat, Portable**
Pedrick Tool & Machine Co., Philadelphia
- Polishing and Buffing Machines**
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago
New Britain Machine Co., New Britain, Conn.
Wilmart & Norman Co., Grand Rapids,
Wisconsin Electric Co., Racine, Wis. [Mich.]
- Presses, Arbor**
Atlas Press Co., Kalamazoo, Mich.
Lourie Mfg. Co., Springfield, Ill.
Nicholson & Co., W. H. Wilkes-Barre, Pa.
Sheldon Machine Co., 403 E. 29th, Chicago
- Presses, Broaching**
American Broach & Mch. Co., Ann Arbor, Mich.
Lourie Mfg. Co., Springfield, Ill.
- Presses, Foot**
Rockford Iron Works, Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.
- Presses, Power**
Hendley & Whittemore Co., Beloit, Wis.
Loshbough-Jordan T. & M. Co., Elkhart, Ind.
Lourie Mfg. Co., Springfield, Ill.
Rockford Iron Works, Rockford, Ill.
- Presses, Punch**
LaSalle Machine Works, 2013 S. LaSalle St., Chicago
Lewthwaite Mch. Co., T. H., 417E. 31st, N. Y.
Loshbough-Jordan T. & M. Co., Elkhart, Ind.
Lourie Mfg. Co., Springfield, Ill.
Rockford Iron Works, Rockford, Ill.
- Presses, Screw**
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Lourie Mfg. Co., Springfield, Ill.
Towsley Mfg. Co., John T., Cincinnati
- Pulley Machinery**
Avey Drilling Machine Co., Cincinnati
- Punch Press Feeds**
Rockford Iron Works, Rockford, Ill.
- Punch, Shear and Bender, Hand**
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
- Punches, Hand**
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 417E. 31st St., N. Y.
Whitney Metal Tool Co., Rockford, Ill.
- Punches, Power**
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- Punches and Dies**
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- Rod Cutters**
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Eastern Machinery Co., Cincinnati, O.
Emerson & Co., Louis E., 1761 Elston Ave., Chicago
Easley Machinery Co., E. L., 555 Washington Blvd., Chicago
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10" High

WITH A

7" Wheel

Table travels automatically in both directions. A hand-power table movement can be operated without changing automatic feed. Also has automatic cross feed in either direction with automatic stop. Wheel truing device is built integral with machine.



EXPERIENCE has demonstrated the superiority of this type of machine for grinding dies, punches and a wide range of small tools, as well as for many manufacturing jobs, such as finishing bright and true surfaces, and parts of tools and instruments.

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La Salle, Illinois, U. S. A.

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Greater precision, wider range and increased production have been attained by replacing the ram stroke with a speedy table stroke

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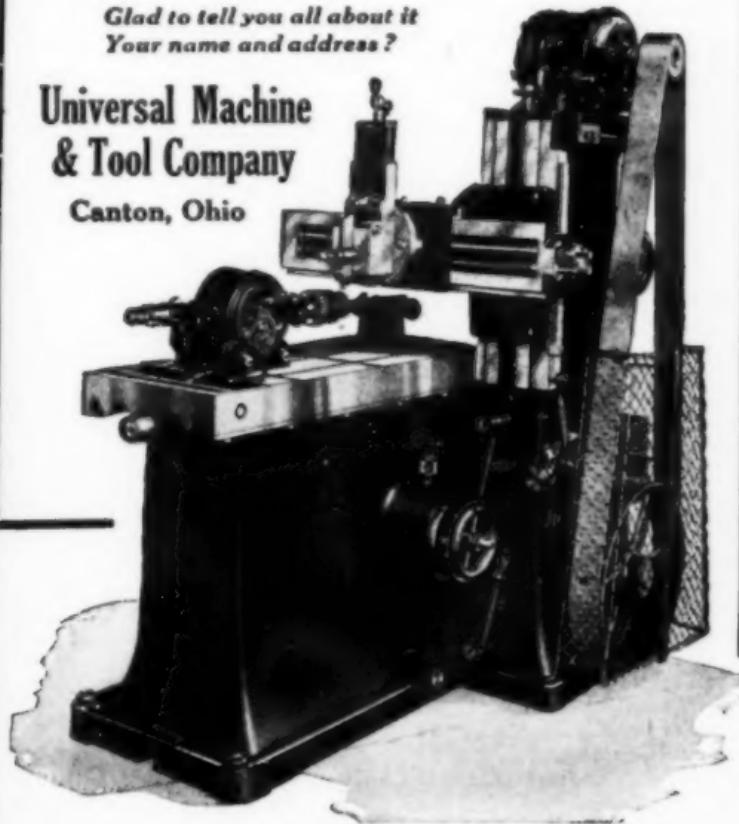
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Reamer
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Swings work 10 1/2"
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